# TABLE OF CONTENTS

UM-Dearborn 2017-2018 Catalog ................................................................. 8  
Academic Calendar ................................................................................... 9  
Organizational Chart .................................................................................. 10  
University of Michigan-Dearborn Officers .................................................. 11  
Campus Map ................................................................................................. 12  
Capsule History of the University of Michigan-Dearborn ................................ 13  
How to Use the Undergraduate Catalog ...................................................... 14  
General Information .................................................................................... 14  
  Accreditation .......................................................................................... 15  
  General Education Program: The Dearborn Discovery Core ................. 15  
  Goals for the Undergraduate Experience ............................................. 22  
Mission and Values .................................................................................... 23  
The Campus ................................................................................................. 23  
Admissions & Orientation .......................................................................... 23  
  Campus Visits/Tours ........................................................................... 24  
  Degrees & Majors Offered ................................................................... 24  
  Pre-Admission Counseling .................................................................. 25  
  Degree-Seeking Student ....................................................................... 25  
  Freshman Student Admission ............................................................. 25  
  Transfer Student Admission ............................................................... 26  
  Credit for Education in the Armed Forces ........................................... 27  
  Admission to the Honors Program ....................................................... 28  
Personal Enrichment ................................................................................... 28  
  Prospective Degree Student ............................................................... 28  
  Alumni Enrichment Program .............................................................. 28  
  Guest Students ..................................................................................... 29  
Dual Enrollment Programs .......................................................................... 29  
Readmit ........................................................................................................ 30  
Deferring Admission .................................................................................. 31  
Teacher Certification .................................................................................. 31  
Second Degree ............................................................................................ 31  
Retired Persons Scholarship Program ...................................................... 31  
Provisional Admission ................................................................................ 31  
International Admission ........................................................................... 31  
Admissions Committees ............................................................................. 34  
Orientation ................................................................................................... 34  
Financial Aid & Scholarships ..................................................................... 34  
  Available Financial Assistance ............................................................ 35  
  Determining Need .................................................................................. 35  
  Cost of Attendance ............................................................................... 36  
How to Apply for Financial Aid ................................................................. 36  
Types of Financial Aid ................................................................................ 37  
Satisfactory Academic Progress ................................................................ 39  
Return of Title IV Funds ............................................................................ 40  
Registration & Records ............................................................................. 41  
  Auditing ................................................................................................. 41  
  Change of Fees and Refunds ............................................................... 42  
  Change in Course Elections: Add, Drop, Withdrawal ......................... 42  
  Class Standing ....................................................................................... 43  
  Grades and Grading ............................................................................. 43  
    Grading System ................................................................................. 43  
    Grade Notations ................................................................................ 43  
    Change of Grades ............................................................................. 44  
    Grading Benchmarks ....................................................................... 44  
  Graduation/Application for Diploma ..................................................... 46  
  Instructor Requested Drop .................................................................... 46  
  Registration Information ....................................................................... 46  
  Reporting of Grades ............................................................................. 46  
  University of Michigan Guidelines for Qualifying for In-State Tuition ... 46  
Transcripts .................................................................................................... 51  
Tuition Assessment and Fee Regulation ................................................... 51  
Enrollment Verification ............................................................................... 53  
Veteran Affairs ........................................................................................... 53  
Policies and Procedures ............................................................................. 53  
  Academic Standing ............................................................................... 53  
  Additional Program Recognition ......................................................... 53  
  Alcohol and Drug Prevention Program Policy .................................... 53  
  Alcohol at Campus Events .................................................................... 53  
  Attendance ............................................................................................. 53  
  Code Conduct for Student Loans ......................................................... 53  
  Coursework at Other Institutions ......................................................... 53  
  Dual Degrees ......................................................................................... 53  
  Eletronic Communication ..................................................................... 53  
  Honors .................................................................................................... 53  
  Institutional Equity ............................................................................... 53  
  Posting and Handbill Distribution ....................................................... 53  
  Privacy and Access to Information ...................................................... 53  
  Repeat Course Policy .......................................................................... 53  
  Rights and Obligations of Speakers, Audience Members and Protestors at Public Presentations of UM-Dearborn .......... 53  
Sexual Harassment by Faculty and Staff ................................................... 53
<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>African &amp; African-American Studies</td>
<td>261</td>
</tr>
<tr>
<td>American Studies (AMST)</td>
<td>264</td>
</tr>
<tr>
<td>Anthropology (ANTH)</td>
<td>265</td>
</tr>
<tr>
<td>Applied Music (MAPP)</td>
<td>269</td>
</tr>
<tr>
<td>Arab American Studies (AAST)</td>
<td>270</td>
</tr>
<tr>
<td>Arabic (ARBC)</td>
<td>271</td>
</tr>
<tr>
<td>Art Applied (ART)</td>
<td>272</td>
</tr>
<tr>
<td>Art History (ARTH)</td>
<td>273</td>
</tr>
<tr>
<td>Astronomy (ASTR)</td>
<td>278</td>
</tr>
<tr>
<td>Behavioral and Biological Sciences</td>
<td>279</td>
</tr>
<tr>
<td>Biochemistry (BCHM)</td>
<td>279</td>
</tr>
<tr>
<td>Bioengineering (BENG)</td>
<td>281</td>
</tr>
<tr>
<td>Biological Science (BIOI)</td>
<td>283</td>
</tr>
<tr>
<td>Business Administration (BA)</td>
<td>288</td>
</tr>
<tr>
<td>Business Economics (BE)</td>
<td>290</td>
</tr>
<tr>
<td>Business Internship (BI)</td>
<td>290</td>
</tr>
<tr>
<td>Business Policy and Strategy (BPS)</td>
<td>291</td>
</tr>
<tr>
<td>Chemistry (CHEM)</td>
<td>291</td>
</tr>
<tr>
<td>Child Life (CLS)</td>
<td>295</td>
</tr>
<tr>
<td>Civic Engagement (CIVE)</td>
<td>296</td>
</tr>
<tr>
<td>Communication (COMM)</td>
<td>296</td>
</tr>
<tr>
<td>Community Health Education (CHE)</td>
<td>299</td>
</tr>
<tr>
<td>Comparative Literature (COML)</td>
<td>299</td>
</tr>
<tr>
<td>Computer &amp; Computational Math (CCM)</td>
<td>301</td>
</tr>
<tr>
<td>Computer &amp; Information Science (CIS)</td>
<td>302</td>
</tr>
<tr>
<td>Criminal Justice Studies (CRJ)</td>
<td>307</td>
</tr>
<tr>
<td>Decision Sciences (DS)</td>
<td>314</td>
</tr>
<tr>
<td>Economics (ECON)</td>
<td>315</td>
</tr>
<tr>
<td>Educ A-Theoretical Foundations (EDA)</td>
<td>318</td>
</tr>
<tr>
<td>Educ B-Educational Admin (EDB)</td>
<td>319</td>
</tr>
<tr>
<td>Educ C-Psychological Foundations (EDC)</td>
<td>319</td>
</tr>
<tr>
<td>Educ D-Curriculum &amp; Instructn (EDD)</td>
<td>323</td>
</tr>
<tr>
<td>Educ F-Physical Education (EDF)</td>
<td>330</td>
</tr>
<tr>
<td>Educ K-Independent Study (EDK)</td>
<td>331</td>
</tr>
<tr>
<td>Educ M-Community &amp; Bilingual (EDM)</td>
<td>331</td>
</tr>
<tr>
<td>Educ N-Special Education (EDN)</td>
<td>331</td>
</tr>
<tr>
<td>Educ T-Education Technology (EDT)</td>
<td>334</td>
</tr>
<tr>
<td>Electrical &amp; Computer Engin (ECE)</td>
<td>336</td>
</tr>
<tr>
<td>Engineering Core (ENGR)</td>
<td>343</td>
</tr>
<tr>
<td>English (ENGL)</td>
<td>345</td>
</tr>
<tr>
<td>English Composition (COMP)</td>
<td>355</td>
</tr>
<tr>
<td>Entrepreneurship (ENT)</td>
<td>357</td>
</tr>
<tr>
<td>Environmental Science (ESCI)</td>
<td>358</td>
</tr>
<tr>
<td>Environmental Studies (ENST)</td>
<td>360</td>
</tr>
<tr>
<td>Exploratory Studies (EXPS)</td>
<td>362</td>
</tr>
<tr>
<td>Finance (FIN)</td>
<td>364</td>
</tr>
<tr>
<td>French (FREN)</td>
<td>365</td>
</tr>
<tr>
<td>Geography (GEOG)</td>
<td>367</td>
</tr>
<tr>
<td>Geology (GEOL)</td>
<td>368</td>
</tr>
<tr>
<td>German (GER)</td>
<td>370</td>
</tr>
<tr>
<td>Global Cultures (GLOC)</td>
<td>371</td>
</tr>
<tr>
<td>Health Policy Studies (HPS)</td>
<td>372</td>
</tr>
<tr>
<td>Health and Human Service (HHS)</td>
<td>374</td>
</tr>
<tr>
<td>History (HIST)</td>
<td>376</td>
</tr>
<tr>
<td>History of Music (MHIS)</td>
<td>386</td>
</tr>
<tr>
<td>Human Resource Management (HRM)</td>
<td>387</td>
</tr>
<tr>
<td>Humanities (HUM)</td>
<td>388</td>
</tr>
<tr>
<td>Indust &amp; Manufac Sys Engin (IMSE)</td>
<td>393</td>
</tr>
<tr>
<td>Information Technology Mgmt (ITM)</td>
<td>397</td>
</tr>
<tr>
<td>International Business (IB)</td>
<td>397</td>
</tr>
<tr>
<td>Japanese (JPN)</td>
<td>398</td>
</tr>
<tr>
<td>Journalism and Screen Studies (JASS)</td>
<td>399</td>
</tr>
<tr>
<td>Latin (LAT)</td>
<td>403</td>
</tr>
<tr>
<td>Law &amp; Environment (LE)</td>
<td>403</td>
</tr>
<tr>
<td>Liberal Studies (LIBS)</td>
<td>403</td>
</tr>
<tr>
<td>Library Science (LIBR)</td>
<td>410</td>
</tr>
<tr>
<td>Linguistics (LING)</td>
<td>410</td>
</tr>
<tr>
<td>Marketing (MKT)</td>
<td>412</td>
</tr>
<tr>
<td>Mathematics (MATH)</td>
<td>414</td>
</tr>
<tr>
<td>Mechanical Engineering (ME)</td>
<td>419</td>
</tr>
<tr>
<td>Microbiology (MICR)</td>
<td>424</td>
</tr>
<tr>
<td>Military Science (MILS)</td>
<td>425</td>
</tr>
<tr>
<td>Modern &amp; Classical Language (MCL)</td>
<td>426</td>
</tr>
<tr>
<td>Music Theory (MTHY)</td>
<td>427</td>
</tr>
<tr>
<td>Natural Science (NSCI)</td>
<td>428</td>
</tr>
<tr>
<td>Operations Management (OM)</td>
<td>429</td>
</tr>
<tr>
<td>Organizational Behavior (OB)</td>
<td>430</td>
</tr>
<tr>
<td>Philosophy (PHIL)</td>
<td>430</td>
</tr>
<tr>
<td>Physics (PHYS)</td>
<td>434</td>
</tr>
<tr>
<td>Political Science (POL)</td>
<td>436</td>
</tr>
<tr>
<td>Professional Education (PDED)</td>
<td>440</td>
</tr>
<tr>
<td>Psychology (PSYC)</td>
<td>441</td>
</tr>
<tr>
<td>Religious Studies (RELS)</td>
<td>446</td>
</tr>
<tr>
<td>Science and Technology Studies (STS)</td>
<td>449</td>
</tr>
<tr>
<td>Academic Unit</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>College of Engineering &amp; Computer Science</td>
<td>539</td>
</tr>
<tr>
<td>Automotive Materials and Design</td>
<td>544</td>
</tr>
<tr>
<td>Automotive Noise, Vibration and Harshness</td>
<td>545</td>
</tr>
<tr>
<td>Automotive Powertrains</td>
<td>545</td>
</tr>
<tr>
<td>Automotive Systems Engineering</td>
<td>545</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>548</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>550</td>
</tr>
<tr>
<td>Control Systems</td>
<td>551</td>
</tr>
<tr>
<td>Digital Signal Processing</td>
<td>551</td>
</tr>
<tr>
<td>Electric Energy Technology</td>
<td>551</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>551</td>
</tr>
<tr>
<td>Embedded System-On-Chip Design</td>
<td>552</td>
</tr>
<tr>
<td>Energy Systems Engineering</td>
<td>552</td>
</tr>
<tr>
<td>Engineering Management</td>
<td>553</td>
</tr>
<tr>
<td>Game Design</td>
<td>554</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>554</td>
</tr>
<tr>
<td>Information Systems Engineering</td>
<td>560</td>
</tr>
<tr>
<td>Intelligent Control</td>
<td>562</td>
</tr>
<tr>
<td>Intelligent Systems in Engineering Applications</td>
<td>563</td>
</tr>
<tr>
<td>Internal Combustion Engines</td>
<td>563</td>
</tr>
<tr>
<td>Manufacturing Systems Engineering</td>
<td>563</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>564</td>
</tr>
<tr>
<td>Multimedia Engineering</td>
<td>565</td>
</tr>
<tr>
<td>Plastic and Composite Materials</td>
<td>565</td>
</tr>
<tr>
<td>Program and Project Management</td>
<td>565</td>
</tr>
<tr>
<td>Quality Engineering</td>
<td>566</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>566</td>
</tr>
<tr>
<td>Structural Analysis and Design</td>
<td>568</td>
</tr>
<tr>
<td>Systems Engineering</td>
<td>568</td>
</tr>
<tr>
<td>Vehicle Electronics and Controls</td>
<td>569</td>
</tr>
<tr>
<td>Courses A-Z</td>
<td>569</td>
</tr>
<tr>
<td>Accounting (ACC)</td>
<td>569</td>
</tr>
<tr>
<td>African &amp; African-Amer Studies (AAAS)</td>
<td>572</td>
</tr>
<tr>
<td>Anthropology (ANTH)</td>
<td>572</td>
</tr>
<tr>
<td>Arab American Studies (AAST)</td>
<td>574</td>
</tr>
<tr>
<td>Art History (ARTH)</td>
<td>574</td>
</tr>
<tr>
<td>Automotive Engineering (AENG)</td>
<td>575</td>
</tr>
<tr>
<td>Automotive Systems Engineering (ASE)</td>
<td>578</td>
</tr>
<tr>
<td>Bioengineering (BENG)</td>
<td>578</td>
</tr>
<tr>
<td>Biological Science (BIOL)</td>
<td>580</td>
</tr>
<tr>
<td>Business Administration (BA)</td>
<td>581</td>
</tr>
<tr>
<td>Business Economics (BE)</td>
<td>581</td>
</tr>
<tr>
<td>Business Internship (BI)</td>
<td>582</td>
</tr>
<tr>
<td>Business Policy and Strategy (BPS)</td>
<td>582</td>
</tr>
<tr>
<td>Chemistry (CHEM)</td>
<td>583</td>
</tr>
<tr>
<td>Communication (COMM)</td>
<td>583</td>
</tr>
<tr>
<td>Comparative Literature (COML)</td>
<td>584</td>
</tr>
<tr>
<td>Computer &amp; Computational Math (CCM)</td>
<td>585</td>
</tr>
<tr>
<td>Computer &amp; Information Science (CIS)</td>
<td>585</td>
</tr>
<tr>
<td>Criminal Justice Studies (CRJ)</td>
<td>591</td>
</tr>
<tr>
<td>Decision Sciences (DS)</td>
<td>593</td>
</tr>
<tr>
<td>Economics (ECON)</td>
<td>595</td>
</tr>
<tr>
<td>Educ A-Theoretical Foundations                                            (EDA)</td>
<td>596</td>
</tr>
<tr>
<td>Educ B-Educational Admin (EDB)</td>
<td>598</td>
</tr>
<tr>
<td>Educ C-Psychological Foundations (EDC)</td>
<td>601</td>
</tr>
<tr>
<td>Educ D-Curriculum &amp; Instructn (EDD)</td>
<td>605</td>
</tr>
<tr>
<td>Educ F-Physical Education (EDF)</td>
<td>611</td>
</tr>
</tbody>
</table>
Educ K-Independent Study (EDK) ............................................. 611
Educ M-Community & Bilingual (EDM) ..................................... 613
Educ N-Special Education (EDN) .............................................. 613
Educ T-Education Technology (EDT) ........................................ 616
Education Mathematics (EDMA) .............................................. 618
Electrical&Computer Engin (ECE) ............................................. 619
Energy Systems Engineering (ESE) .......................................... 629
Engineering Core (ENGR) .......................................................... 630
Engineering Management (EMGT) ............................................ 630
English (ENGL) ........................................................................... 632
English Composition (COMP) .................................................... 635
Entrepreneurship (ENT) ............................................................. 636
Environmental Science (ESCI) .................................................. 636
Environmental Studies (ENST) .................................................. 637
Exploratory Studies (EXPS) ....................................................... 637
Finance (FIN) ............................................................................. 639
Geology (GEOL) .......................................................................... 640
German (GER) ............................................................................ 641
Health Information Technology (HIT) ....................................... 641
Health Policy Studies (HPS) ..................................................... 642
Health and Human Service (HHS) ............................................ 644
History (HIST) ............................................................................ 644
Human Resource Management (HRM) ................................... 646
Humanities (HUM) ..................................................................... 646
Indust & Manufac Sys Engin (IMSE) ........................................ 647
Information Sys Engineering (ISE) ............................................ 654
Journalism and Screen Studies (JASS) ................................... 654
Law & Environment (LE) ............................................................ 655
Liberal Studies (LIBS) ............................................................... 655
Library Science (LIBR) ............................................................... 658
Linguistics (LING) ...................................................................... 659
Local Government Management (LGM) ................................... 660
Management Information Systems (MIS) ................................. 660
Marketing (MKT) ................................................................. 661
Mathematics (MATH) ............................................................... 662
Mechanical Engineering (ME) .................................................. 668
Microbiology (MICR) .................................................................. 674
Modern & Classical Language (MCL) ..................................... 675
Natural Science (NSCI) ............................................................ 675
Operations Management (OM) ............................................... 676
Organizational Behavior (OB) .................................................... 677
Philosophy (PHIL) ................................................................. 677
Physics (PHYS) ........................................................................ 678
Political Science (POL) ............................................................. 678
Professional Education (PDED) ................................................ 679
Psychology (PSYC) ................................................................ 681
Public Administration (PADM) ............................................... 685
Public Policy (PPOL) ............................................................... 687
Religious Studies (RELS) ....................................................... 689
Social Sciences (SSCI) .............................................................. 689
Sociology (SOC) ....................................................................... 690
Spanish (SPAN) ....................................................................... 693
Speech (SPEE) ......................................................................... 693
Statistics (STAT) ..................................................................... 694
Tax (TAX) ................................................................................. 694
Women's and Gender Studies (WGST) ..................................... 696
Index ........................................................................................ 699
## ACADEMIC CALENDAR

### Fall Term 2017

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Registration Begins ¹</td>
<td>Monday, April 24</td>
</tr>
<tr>
<td>Labor Day (Holiday)</td>
<td>Monday, September 4</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Wednesday, September 6</td>
</tr>
<tr>
<td>Fall Study Break</td>
<td>Monday-Tuesday, October 16-17</td>
</tr>
<tr>
<td>Thanksgiving recess begins at 5:00 pm ²</td>
<td>Wednesday-Sunday, November 22-26</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday, November 27</td>
</tr>
<tr>
<td>Classes end</td>
<td>Tuesday, December 12</td>
</tr>
<tr>
<td>Study Day</td>
<td>Wednesday, December 13</td>
</tr>
<tr>
<td>Examinations</td>
<td>Thursday-Friday, December 14-15</td>
</tr>
<tr>
<td>Commencement</td>
<td>Saturday, December 16</td>
</tr>
</tbody>
</table>

¹ Check umdearborn.edu/registration for early registration dates.
² Thanksgiving recess will include all courses that begin on Wednesday at 5:00 pm or thereafter.

### Winter Term 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Registration Begins ¹</td>
<td>Monday, December 11</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Monday, January 8</td>
</tr>
<tr>
<td>Martin Luther King, Jr. Birthday No Regular Classes</td>
<td>Monday, January 15</td>
</tr>
<tr>
<td>Spring recess begins</td>
<td>Saturday, February 24</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday, March 5</td>
</tr>
<tr>
<td>Dearborn Honors Convocation</td>
<td>Tuesday, March 27</td>
</tr>
<tr>
<td>Classes end</td>
<td>Friday, April 20</td>
</tr>
<tr>
<td>Study day</td>
<td>Saturday, April 21</td>
</tr>
<tr>
<td>Examinations</td>
<td>Monday-Friday, April 23-27</td>
</tr>
<tr>
<td>Commencement</td>
<td>Sunday, April 29</td>
</tr>
</tbody>
</table>

¹ Check umdearborn.edu/registration for early registration dates.

### Summer Term 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Registration Begins ¹</td>
<td>Monday, April 23</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Monday, May 7</td>
</tr>
<tr>
<td>Memorial Day (Holiday)</td>
<td>Monday, May 28</td>
</tr>
<tr>
<td>Classes end (7-week classes)</td>
<td>Friday, June 22</td>
</tr>
<tr>
<td>Study Day</td>
<td>Saturday, June 23</td>
</tr>
<tr>
<td>Summer Recess begins</td>
<td>Sunday, June 24</td>
</tr>
<tr>
<td>Examinations (7-week classes)</td>
<td>Monday-Wednesday, June 25-27</td>
</tr>
<tr>
<td>Classes resume (7-week and 14-week classes)</td>
<td>Monday, July 2</td>
</tr>
<tr>
<td>Independence Day (celebrated)</td>
<td>Wednesday, July 4</td>
</tr>
<tr>
<td>Classes end (7-week and 14-week classes)</td>
<td>Friday, August 17</td>
</tr>
</tbody>
</table>

¹ Check umdearborn.edu/registration for early registration dates.

Dates are subject to change at any time by the Board of regents.
ORGANIZATIONAL CHART

- Chancellor - D. Little
  - Emergency Management - L. Drabczyk
- Senior Advisor to the Chancellor for Inclusion and Special Projects - A. Lampkin-Williams
- Executive Assistant to the Chancellor - M. Davis
- Senior Advisor to the Chancellor and Associate Provost for Metropolitan Impact - I. Ahmed
- Assistant to the Chancellor for Institutional Equity - A. Green
- Vice Chancellor for Institutional Advancement - M. Simpson
  - Assistant Vice Chancellor - K. McAlpine
  - Business Engagement Center - C. Barnett-Harrison
  - Foundation Giving - A. Serra
  - Alumni Engagement - C. Frendo
- Vice Chancellor for Business Affairs - J. Evans
  - Financial Services - N. Hornbacher
  - Human Resources - K. Blevins
  - Public Safety - K. Williams
  - Facilities Operations - C. Glick
    - Environmental Health and Safety - T. Perez
    - Facilities Planning - K. Pepin
- Provost and Vice Chancellor for Academic Affairs - C. Davy
  - Dean, College of Business - R. Balakrishnan
  - Dean, College of Arts, Sciences, and Letters - M. Hershock
  - Dean, College of Education, Health, and Human Services - J. Janosky
  - Dean, College of Engineering and Computer Sciences - T. England
  - Associate Provost for Undergraduate Programs and Integrative Learning - M. Sollenberger
- Assistant Provost for Planning and Organizational Effectiveness
  - Information Technology - C. Shumaker (interim)
  - Institutional Research - M. Sollenberger (interim)
  - Hub for Teaching and Learning Resources - C. Vecchiola
- Associate Provost for Graduate, International, and Online Learning - I. Miteza
  - Graduate Studies - T. Wdziekonski
  - Online Learning - C. Casey
  - Mardigian Library - E. Logan
- Vice Chancellor for Enrollment Management and Student Life - R. Metz
  - Assistant Vice Chancellor - M. Porter
    - Career Services - R. Storrs
    - Counseling and Disability Services - D. Hutton
    - Office of Student Success - A. Finley
    - Student Engagement - R. Raveendran
    - Women's Resource Center - S. Carter
    - International Affairs - M. Porter
  - Admissions and Orientation - D. Peffer
  - Athletics - M. Beaudry
  - Enrollment Research and Analysis - D. Merian
  - Enrollment Services and University Registrar - J. Lewis-Boyd
- Financial Aid and Scholarships - K. Allen
- Ombuds Services - L. Savage
- University Unions and Events - D. Disney
- Vice Chancellor for External Relations - K. Kettenbeil
  - Communications and Marketing - B. Marmarelli
  - Government Relations - M. Latvis
  - Web/Digital Strategy - L. Garling
UNIVERSITY OF MICHIGAN-DEARBORN OFFICERS

Regents of the University
Michael J. Behm, Grand Blanc
Mark J. Bernstein, Ann Arbor
Laurence B. Deitch, Bloomfield Hills
Shauna Ryder Diggs, Grosse Pointe
Denise Ilitch, Bingham Farms
Andrea Fischer Newman, Ann Arbor
Andrew C. Richner, Grosse Pointe Park
Katherine E. White, Ann Arbor
Mark S. Schlissel, ex officio

Executive Officers of the University
Mark S. Schlissel, M.D., Ph.D., President
Daniel E. Little, Ph.D., Chancellor, University of Michigan-Dearborn
Sally J. Churchill, J.D., Vice President and Secretary of the University
S. Jack Hu, Ph.D., Interim Vice President for Research
E. Royster Harper, Ph.D., Vice President for Student Life
Timothy Lynch, J.D., Vice President and General Counsel
Jerry A. May, M.Ed., A.B.D., Vice President for Development
Susan E. Borrego, Ph.D., Chancellor, University of Michigan-Flint
Marschall S. Runge, M.D., Ph.D., Executive Vice President for Medical Affairs
Martha E. Pollack, Ph.D., Provost and Executive Vice President for Academic Affairs
Lisa Rudgers, B.A., Vice President for Global Communications and Strategic Initiatives
Kevin Hegarty, M.A., Interim Executive Vice President and Chief Financial Officer
Cynthia H. Wilbanks, A.B., Vice President for Government Relations

University of Michigan-Dearborn Senior Officers
Daniel E. Little, Ph.D., Chancellor
Catherine A. Davy, Ph.D., Provost and Vice Chancellor for Academic Affairs
Mallory M. Simpson, M.Ed., Vice Chancellor for Institutional Advancement
Kenneth C. Kettenbeil, B.A., Vice Chancellor for External Relations
Jeffrey L. Evans, M.B.A., Vice Chancellor for Business Affairs
Ray Metz, M.L.S., Vice Chancellor for Enrollment Management and Student Life

Academic Deans
Raju Balakrishnan, Ph.D., College of Business
Martin J. Hershock, Ph.D., College of Arts, Sciences, and Letters
Tony W. England, Ph.D., College of Engineering and Computer Science
Janine Janosky, Ph.D., College of Education, Health, and Human Services

Directors
Katherine Allen, M.B.A., Director of Financial Aid and Scholarships
Matthew Beaudry, M.S., Director of Athletics
Andrew Beverly, M.A., Director of Student Advising Resource Team
John J. Cristiano, Ph.D., Campus Director of Research Administration
Shareia N. Carter, M.L.S., Director of Women’s Resource Center
David A. Disney, M.S., Director of Student Union and Event
CAPSULE HISTORY OF THE UNIVERSITY OF MICHIGAN-DEARBORN

The origins of the University of Michigan-Dearborn can be traced to manpower supply studies conducted by Archie Pearson, director of training for Ford Motor Company, in the mid-1950's. Convinced that serious shortages were looming for the Company in qualified, college-trained engineers and junior administrators, he made discreet inquiries of educational institutions in the Detroit area concerning their willingness to adjust their programs to meet these needs.

Pearson was particularly interested in a program with a cooperative education component that would provide several periods of full-time work experience, alternating with regular terms of professional academic study. However, until Pearson and his associates were put in touch with members of the top administration at the University of Michigan, the search had been futile. In late 1955, Pearson, with his associates, began negotiations with the University of Michigan officials that led to the establishment of the Dearborn Center of the University of Michigan. The announcement on December 17, 1956 of a gift of land and capital development money from the Company to the University emphasized the building of an upper-division and master's level campus which would adopt a cooperative work-study requirement as a part of its regular degree program in engineering and business administration. The University was to provide the regular professional and liberal arts courses necessary to a University of Michigan bachelor's or master's degree, with the co-op work assignments forming an integral addition to the regular academic requirements. UM-Dearborn opened as the Dearborn Center of the University of Michigan on September 28, 1959.

The upper-division cooperative education program was the first important educational emphasis of what is now UM-Dearborn. Cooperative education is still a vital part of the professional programs, and not only has it expanded to include liberal arts students, but other kinds of off-campus experience for credit have been added as well. There are now regular program-related internships in political science, economics, social work, humanities, health studies and public administration. Nevertheless, it became apparent in the early days that the campus could not afford to be limited to a single focus, and over the years the University has gone through several stages of modifying its original purposes and structure.

From its inception in 1956 to about 1962, the cooperative education program was confidently set forth as a sufficient raison d'être for the campus, in spite of growing evidence that this admittedly fine and educationally sound opportunity was not drawing a sufficient number of students for economical use of the facilities. In the fall of 1962, William Storton, the University of Michigan Vice President and UM-Dearborn's first chief executive, extended cooperative education to the liberal arts areas on an optional basis. Few liberal arts co-op work assignments were actually made before 1973, when the present liberal arts co-op program was officially established. This early attempt to extend the co-op program to liberal arts constituted the last major attempt to build the campus solely on the basis of the co-op programs and the upper-division/graduate structure. That effort came at about the same time as the change in the name of the institution from "Center" to "Campus" (to make its objectives seem less limited). Both events marked the beginning of a period in the mid-1960's characterized by growing uncertainty about the future of the institution. This period ended in 1969 with the recommendations of the Ross Committee (also referred to as the Balzhiser Committee, and officially called the Dearborn Campus Planning Study Committee), which radically changed the direction of the campus.

The 1969 report of the Dearborn Campus Planning Study Committee, appointed by University Vice President for State Relations and Planning Arthur Ross to consider the future of the campus, recommended the addition of the first two years of undergraduate education for the Dearborn Campus to become a full four-year institution along with expanding non-co-op programs. Those and other changes were implemented in 1971 giving the campus its present structure along with the newly designated title of "The University of Michigan-Dearborn" and a Chancellor as its chief executive officer. Two years later, the organizational structures changed from "divisions" to schools and colleges, and the Division of Education ("Urban Education" for the first few years) was created, with each of the major academic units headed by a dean. The Board of Regents appointed the first Chancellor of the UM-Dearborn, Dr. Leonard E. Goodall, in July 1971.

After that watershed change in 1971, UM-Dearborn grew rapidly from just under 1,000 students to over 6,000 in 1979. From 1971 through 1979 there was a scramble just to supply the courses and facilities needed to accommodate the soaring student population propelled by the transition into a University. New faculties were added at the rate of 10 to 20 per year, and the face of the campus changed as a new set of buildings (the former University Mall now remodeled as the University Center, the Fieldhouse, and the Library) was planned and constructed to the south of the original four buildings. These years of expansion also ushered in a period of severe retrenchment, when the debt burden of the new structures coincided with a recession and cuts in state aid to the campus. Dr. William Jenkins, appointed as UM-Dearborn's second Chancellor in 1980, took the helm at the beginning of what may be called the institution's "Years of Consolidation."

The early 1980's at UM-Dearborn were, as in the state of Michigan as a whole, a period of severe financial crisis. From 1979 through 1982, over a million dollars of funds allocated to UM-Dearborn by the state had to be recalled. During that same time, faculty and staff salaries were cut and student tuition rose 44 percent in three years. Nevertheless, student enrollment, after a slight drop from 1982 to 1984, resumed its steady rise that has continued to the present. Facilities were constructed also, including Manufacturing Systems Engineering Laboratory, the Social Sciences Building (formerly the School of Management Building), and the Computing Wing of the Science Building.

From about the time of the inauguration of Chancellor Blenda Wilson (1988), several developments in campus organization, administrative personnel, and academic offerings have highlighted what might be called the "Years of Redirection". At the center of this "redirection" has been a program of strategic planning, initiated in the summer of 1990 and reinforced by planning retreats for the whole campus in the fall terms of 1990, 1991 and 1992. A new campus mission statement arose out of the first retreat which rearticulates UM-Dearborn's commitment to providing an experience of academic excellence for a diverse body of students from the metropolitan Detroit area, encouraging full community attention to the traditions of free intellectual inquiry, critical thinking and ethical behavior through interactive teaching, research, creative and applied scholarship, and service. From the second retreat emerged the principal points of a set of learning goals for undergraduate students.

In 1993, the Board of Regents appointed Dr. James C. Renick as the fourth chancellor of UM-Dearborn. Under Chancellor Renick, UM-Dearborn experienced several important developments: (1) a new Mission...
In July of 2000, the Board of Regents appointed Daniel Little as UM-Dearborn’s fifth Chancellor. Under Chancellor Little’s leadership the campus has achieved record enrollment growth, increased the academic quality of the student body, and improved the academic support system for student success. During these years the campus came to embrace a metropolitan vision that encourages engagement with the community by students, faculty, and staff. Particular areas of metropolitan focus include supporting advanced manufacturing, contributing to racial and ethnic equality, enhancing P-K-12 education, addressing urban environmental issues, and contributing to progress in health care and health equity. Little has helped to build strong relationships between UM-Dearborn and a wide range of community-based organizations to enhance the impact and partnership of the university in the Detroit metropolitan region. The Chancellor also led the campus in establishing a public-private partnership to offer a student-housing option for the first time on campus since the 1980s.

In 2009, UM-Dearborn welcomed its fourth Provost and Vice Chancellor for Academic Affairs, Dr. Catherine A. Davy. Under her leadership, the School of Education was transformed into the College of Education, Health, and Human Services with a focus on health studies. In addition, a new campus-wide general education program titled the Dearborn Discovery Core was developed. Finally, in the fall 2014, Provost Davy led the successful reaccreditation of UM-Dearborn by the Higher Learning Commission.

Source of information up to 1984: A Gift Renewed, written by Professor Elton D. Higgs.

How to Use the Undergraduate Catalog

The Catalog of the University of Michigan-Dearborn is a fundamental source of information concerning academic opportunities, policies, regulations, and procedures. It is each student’s responsibility to become familiar with the information contained herein.

The catalog is divided into ten sections:

- General information (p. 14)
- Admissions & Orientation (p. 23)
- Financial Aid and Scholarships (p. 34)
- Registration and Records (p. 41)
- Special Programs (p. 53)
- Academic Policies (http://catalog.umd.umich.edu/undergraduate/academic-policies)
- College of Arts, Sciences, and Letters (p. 54)
- College of Business (p. 148)
- College of Education, Health, and Human Services (p. 169)
- College of Engineering and Computer Science (p. 226)

The College of Arts, Sciences, and Letters, College of Business, College of Engineering and Computer Science, and College of Education, Health, and Human Services sections contain: specific regulations and procedures which may be unique to that academic unit; information regarding programs, degrees and courses offered; and a plan for electing courses to fulfill undergraduate degree requirements.

Key to Course Listings

The heading for each course listing contains the following information.

Discipline and Course Number

Courses are numbered in accordance with a University-wide numbering system:

Courses numbered 100 to 199 and 1000 to 1999 are introductory to a field or discipline. The courses exert a demand for only such depth of study commensurate with initial work at the college level.

Courses numbered 200 to 299 and 2000 to 2999 are considered intermediate and require student independence in the acquisition of material and mastery of techniques and methods above the introductory-level courses.

Courses numbered 300 to 499 or 3000 to 4999 are considered advanced and are usually confined to the program/major and require a working knowledge of facts, theory, and methods appropriate to the discipline.

Courses numbered 500 to 999 or 5000 to 9999 are intended for a graduate-level program study.

Course Title

The bold face course title follows the course number.

Credit Hours

Credit hours at the University of Michigan-Dearborn are based on semester hours. The number of credit hours for each course is listed below the title.

Prerequisite

Prerequisites to the course normally appear below the title and credit hours, although they may sometimes be included in the course description. They should be completed before the course is elected.

Concurrent Courses

Courses listed in the prerequisite section with an asterisk (*) indicate those that may be taken concurrently with the course listed.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally.

General Information

The University of Michigan-Dearborn is one of the three campuses of the University of Michigan operating under the policies of the Board of Regents.

The campus, located on the former estate of automotive pioneer Henry Ford, was founded in 1959 as a senior-level institution offering junior, senior and graduate-level courses and degrees. In 1971, UM-Dearborn became a comprehensive university campus offering four-year degree programs in liberal arts and sciences and graduate programs at the master’s degree level.
More than 9,000 highly selective students, representing a wide range of academic interests and diverse backgrounds, are currently enrolled at the UM-Dearborn.

As part of the University of Michigan, UM-Dearborn enjoys an association with a large multi-university and the advantages of moderate size. Through expanded evening course offerings, professional development programs and cooperative education programs, UM-Dearborn continues to respond to the educational needs of commuting students from the Detroit metropolitan community.

**General Education Program: The Dearborn Discovery Core**

The campus-wide general education program at the University of Michigan-Dearborn, known as the Dearborn Discovery Core, is designed to complement work in a student’s chosen area of study. These classes serve as a means of discovery for students, providing a foundation for learning, connecting to potential new areas of interest and building tools for success in whatever field a student pursues. Learning outcomes are guided by the qualities every student should develop as they move toward graduating with a University of Michigan-Dearborn degree.

The Dearborn Discovery Core requirements incorporate the Goals for the Undergraduate Experience to help ensure that students master the tools and techniques necessary to succeed in college and throughout their lives and careers. The Dearborn Discovery Core is divided into three sections: Foundational Studies, Areas of Inquiry, and Capstone Experience.

An overall Grade Point Average of 2.0 is required of students when completing the Dearborn Discovery Core.

A course can count for a maximum of three categories within the Dearborn Discovery Core.

**Foundational Studies [15 credits]**

**Written and Oral Communication [6 credits]**

Students who receive an English Placement score of COMP 106 or higher shall satisfy three credits of the Written and Oral Communication category.

1. Students are able to compose, revise, and edit their own writing for clarity and fluency of expression.
2. Students are able to demonstrate how to prepare and adapt written and oral communication to the needs of multiple audiences across professional, academic, and interpersonal contexts.
3. Students are able to demonstrate an understanding of academic integrity and use research skills including evaluating information, writing from sources, and correctly citing works.
4. Students are able to critically evaluate and use readings and ideas in composing written or oral work.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 106</td>
<td>Writing &amp; Rhetoric II</td>
<td>3</td>
</tr>
<tr>
<td>COMP 110</td>
<td>Honors Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 220</td>
<td>Honors Writing &amp; Rhetoric II</td>
<td>3</td>
</tr>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

**Writing Intensive Course [3 upper-level credits]**

1. Students are able to demonstrate advanced competency by writing for a specific audience and integrating disciplinary ideas and concepts.
2. Students are able to effectively evaluate and use research methods, sources or technology appropriate to the field.
3. Students are able to engage in critical inquiry and thinking to synthesize or create a new rendering or perspective.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAST 4677</td>
<td>Arab American Identity</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Who Owns the Past?</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 416</td>
<td>Earl Mod Jpn Paint&amp;Wood Prnts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 427</td>
<td>Greek Architecture</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BCHM 496</td>
<td>Complex Systems</td>
<td>3</td>
</tr>
<tr>
<td>BENG 4671</td>
<td>Senior Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS 375</td>
<td>Software Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>CIS 4972</td>
<td>Cap Proj for Data Sci II</td>
<td>2</td>
</tr>
<tr>
<td>COMM 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>COMP 310</td>
<td>Narrative Journalism</td>
<td>3</td>
</tr>
<tr>
<td>COMP 327</td>
<td>Advanced Exposition</td>
<td>3</td>
</tr>
<tr>
<td>COMP 436</td>
<td>Memoir and Travel Writing</td>
<td>3</td>
</tr>
<tr>
<td>COMP 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>COMP 475</td>
<td>Supporting Literacies</td>
<td>3</td>
</tr>
<tr>
<td>COMP 485</td>
<td>Theories of Writing</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 308</td>
<td>Moral and Political Dilemmas</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 435</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 4130</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ECE 4981</td>
<td>Electrical Engineering Des I</td>
<td>2</td>
</tr>
<tr>
<td>ECE 4982</td>
<td>Computer Engineering Des I</td>
<td>2</td>
</tr>
<tr>
<td>ECE 4983</td>
<td>Electrical Engin Design II</td>
<td>2</td>
</tr>
<tr>
<td>ECE 4984</td>
<td>Computer Engin Design II</td>
<td>2</td>
</tr>
<tr>
<td>ECE 4987</td>
<td>Robotics Engineering Design I</td>
<td>2</td>
</tr>
<tr>
<td>ECE 4988</td>
<td>Robotics Engineering Design II</td>
<td>2</td>
</tr>
<tr>
<td>EDC 442</td>
<td>EC: Fam/Sch/Comm Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>Narrative Journalism</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 323</td>
<td>Advanced Creative Writing</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 327</td>
<td>Advanced Exposition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 436</td>
<td>Memoir and Travel Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 451</td>
<td>Maj Am Auth Civ War to WWI</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 467</td>
<td>Script-Writing Workshop</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 485</td>
<td>Theories of Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENST 487</td>
<td>Comparative Environ Policy</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 420</td>
<td>Science Capstone</td>
<td>3</td>
</tr>
<tr>
<td>HHS 406</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>HIST 309</td>
<td>The Russian Revolutions</td>
<td>3</td>
</tr>
</tbody>
</table>
3. Students are able to carry out mathematical (e.g. algebraic, geometric, logical, statistical) procedures flexibly, accurately, and efficiently to solve problems.

4. Students are able to evaluate the validity of logical or quantitative arguments.

**Critical and Creative Thinking [3 credits]**
1. Students are able to identify, summarize, and understand the problem, question, and/or issue.
2. Students are able to identify, locate, and critically or creatively evaluate evidence using appropriate sources or technology.
3. Students are able to consider and interpret alternative perspectives to support analysis.
4. Students are able to develop and communicate conclusions and implications by synthesizing technical, aesthetic, conceptual knowledge or supporting evidence.

**Quantitative Thinking and Problem Solving [3 credits]**
1. Students are able to interpret information presented in mathematical form (e.g. with functions, equations, graphs, diagrams, tables, words, geometric figures).
2. Students are able to represent information/data in mathematical form as appropriate (e.g. with functions, equations, graphs, diagrams, tables, words, geometric figures).
3. Students are able to carry out mathematical (e.g. algebraic, geometric, logical, statistical) procedures flexibly, accurately, and efficiently to solve problems.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>COMP 475</td>
<td>Supporting Literacies</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 200</td>
<td>Intro to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 307</td>
<td>Forensic Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 308</td>
<td>Moral and Political Dilemmas</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>CRJ 435</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 476</td>
<td>Inside Out Prison Exchange</td>
<td>4</td>
</tr>
<tr>
<td>CRJ 489</td>
<td>Law, Crime, and Society</td>
<td>3</td>
</tr>
<tr>
<td>ECE 329</td>
<td>Intro to Computer Music</td>
<td>4</td>
</tr>
<tr>
<td>ECE 3731</td>
<td>Micropoc and Embedded Sys</td>
<td>4</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 200</td>
<td>Intro to English Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 230</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 232</td>
<td>Intro to Literature: Fiction</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 233</td>
<td>Intro to Literature: Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 327</td>
<td>Advanced Exposition</td>
<td>3</td>
</tr>
<tr>
<td>ENST 400</td>
<td>Appl Business Tech for Engr</td>
<td>3</td>
</tr>
<tr>
<td>ENST 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>FREN 331</td>
<td>French Lit: 19th-20th Century</td>
<td>3</td>
</tr>
<tr>
<td>FREN 339</td>
<td>Francophone Lit and Civil</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>HIST 339</td>
<td>Ottoman Empire in 19th Century</td>
<td>3</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Honors Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HIST 370</td>
<td>Women in Am-Hist Perspective</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3130</td>
<td>Armenia Ancient Medieval World</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3511</td>
<td>Modern Middle East, 1918-1945</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3512</td>
<td>Modern Middle East, 1945-1991</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3520</td>
<td>Lebanon in Modern Middle East</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3632</td>
<td>The US in the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3695</td>
<td>American City</td>
<td>3</td>
</tr>
<tr>
<td>HPS 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td>3</td>
</tr>
<tr>
<td>HUM 240</td>
<td>Film and Society</td>
<td>3</td>
</tr>
<tr>
<td>HUM 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>HUM 303</td>
<td>Intro to Women's &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>HUM 388</td>
<td>W. African Music: Trad.&amp;Glob.</td>
<td>3</td>
</tr>
<tr>
<td>JASS 240</td>
<td>Film and Society</td>
<td>3</td>
</tr>
<tr>
<td>JASS 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>JASS 332</td>
<td>Creating the Graphic Novel</td>
<td>3</td>
</tr>
<tr>
<td>JASS 336</td>
<td>Film and Music</td>
<td>3</td>
</tr>
<tr>
<td>JASS 387</td>
<td>Gender,Sex,Power Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>LIBS 137</td>
<td>American Horror Stories</td>
<td>3</td>
</tr>
<tr>
<td>LIBS 139</td>
<td>Crossing Boundaries</td>
<td>3</td>
</tr>
<tr>
<td>LIBS 180</td>
<td>Talk &amp; Text</td>
<td>3</td>
</tr>
<tr>
<td>LIBS 364</td>
<td>The European Union</td>
<td>3</td>
</tr>
<tr>
<td>MATH 300</td>
<td>Math Lang Proof &amp; Struct</td>
<td>3</td>
</tr>
<tr>
<td>ME 4671</td>
<td>Senior Design I</td>
<td>4</td>
</tr>
<tr>
<td>MIDS 130</td>
<td>Intro to World Music</td>
<td>3</td>
</tr>
<tr>
<td>MIDS 336</td>
<td>Film and Music</td>
<td>3</td>
</tr>
<tr>
<td>MIDS 388</td>
<td>W. African Music: Trad.&amp;Glob.</td>
<td>3</td>
</tr>
<tr>
<td>PDED 405</td>
<td>Sp Ed Legisltn and Litigation</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>POL 303</td>
<td>Justice</td>
<td>3</td>
</tr>
<tr>
<td>POL 304</td>
<td>American Political Thought</td>
<td>3</td>
</tr>
<tr>
<td>POL 306</td>
<td>Political Ideologies</td>
<td>3</td>
</tr>
<tr>
<td>POL 308</td>
<td>Moral and Political Dilemmas</td>
<td>3</td>
</tr>
<tr>
<td>POL 310</td>
<td>Modern Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 303</td>
<td>Intro to Women's &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Lab in Developmental Psych</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 465</td>
<td>Experimental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 303</td>
<td>Intro to Women's &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>SOC 308</td>
<td>Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOC 303</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>SOC 304</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>SOC 313</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 345</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 346</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>SOC 355</td>
<td>Language of Business</td>
<td>3</td>
</tr>
<tr>
<td>SOC 360</td>
<td>Advanced Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>SOC 369</td>
<td>Oral Expression</td>
<td>3</td>
</tr>
<tr>
<td>SOC 385</td>
<td>Hispanic Cinema</td>
<td>3</td>
</tr>
<tr>
<td>SOC 386</td>
<td>Spanish Film</td>
<td>3</td>
</tr>
<tr>
<td>SOC 395</td>
<td>Contemporary Spanish Lit</td>
<td>3</td>
</tr>
<tr>
<td>STS 308</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>STS 409</td>
<td>Human Body, Growth &amp; Health</td>
<td>3</td>
</tr>
<tr>
<td>STS 3695</td>
<td>The American City</td>
<td>3</td>
</tr>
<tr>
<td>WGST 303</td>
<td>Intro to Women's &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>WGST 370</td>
<td>Women in America-Hist Perspect</td>
<td>3</td>
</tr>
<tr>
<td>WGST 387</td>
<td>Gender,Sex,Power Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>WGST 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>WGST 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>WGST 476</td>
<td>Inside Out Prison Exchange</td>
<td>4</td>
</tr>
<tr>
<td>WGST 4555</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
</tbody>
</table>

**Areas of Inquiry [28 credits]**

**Natural Sciences [7 credits including one lab science course]**

1. Students are able to demonstrate an understanding of the nature of the scientific method including hands-on practice.
2. Students are able to formulate and interpret testable questions that result in qualitative and quantitative data.
3. Students are able to apply unifying theories and laws to natural science disciplines and are able to explain examples.
4. Students are able to demonstrate the ability to interpret and communicate science and apply its relevance.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 376</td>
<td>Power &amp; Privilege in SE Mich</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Who Owns the Past?</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 406</td>
<td>Culture and Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 411</td>
<td>Archaeological Lab Methods</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 412</td>
<td>Men and Masculinities</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 415</td>
<td>Nutrition and Health</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 421</td>
<td>Education and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 430</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 459</td>
<td>Human Osteology</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 200</td>
<td>Intro to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 300</td>
<td>Political Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 308</td>
<td>Moral and Political Dilemmas</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 325</td>
<td>Psyc of Interpersonal Relation</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 362</td>
<td>Women, Politics, and the Law</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 382</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>CRJ 412</td>
<td>Men and Masculinities</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 435</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 440</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 443</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 489</td>
<td>Law, Crime, and Society</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 494</td>
<td>Pol Sci Internship Seminar</td>
<td>3,6</td>
</tr>
<tr>
<td>CRJ 4130</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EDA 205</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDA 340</td>
<td>Foundations of American Ed</td>
<td>2,3</td>
</tr>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>ENST 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>ENST 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>ENST 326</td>
<td>Anth of Health and Environment</td>
<td>3</td>
</tr>
<tr>
<td>ENST 467</td>
<td>Food Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>ENST 487</td>
<td>Comparative Enviro Policy</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>Mapping Our World</td>
<td>3</td>
</tr>
<tr>
<td>HHS 200</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111</td>
<td>The American Past I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Western Culture I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 262</td>
<td>Western Culture II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 263</td>
<td>Western Culture III</td>
<td>3</td>
</tr>
<tr>
<td>HIST 264</td>
<td>Western Culture IV</td>
<td>3</td>
</tr>
</tbody>
</table>

**Social and Behavioral Analysis [9 credits]**

1. Students are able to demonstrate knowledge of the fundamental concepts of a specific discipline in the behavioral or social sciences and the impact of those fundamental concepts on actions, perceptions or values.
2. Students are able to apply disciplinary knowledge in the behavioral or social sciences to contemporary or historical issues.
3. Students are able to demonstrate understanding of the methods, models or theories that produce knowledge in a specific field in the behavioral or social sciences.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>Introductory Astronomy Lab</td>
<td>1</td>
</tr>
<tr>
<td>ASTR 133</td>
<td>Search for Life in Universe</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 100</td>
<td>Principles of Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>0.4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Field Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 100</td>
<td>Chemistry and Society</td>
<td>0.4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>0.4</td>
</tr>
<tr>
<td>ENST 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 320</td>
<td>Field Biology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 218</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>NSCI 120</td>
<td>Matter, Energy, and Life I</td>
<td>4</td>
</tr>
<tr>
<td>NSCI 121</td>
<td>Matter, Energy, and Life II</td>
<td>4</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry:Earth/Planet Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 100</td>
<td>Perspectives in Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 126</td>
<td>Introductory Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 488</td>
<td>Primatology Field Course</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 101</td>
<td>Introduction to Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 201</td>
<td>Introduction to Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 320</td>
<td>Culture and Int’l Business</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 325</td>
<td>Anth of Health and Environment</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 331</td>
<td>Human Evolution</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 341</td>
<td>Human Paleontology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 350</td>
<td>Prehistoric Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 370</td>
<td>Indians of North America</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>HIST 309</td>
<td>The Russian Revolutions</td>
<td>3</td>
</tr>
<tr>
<td>HIST 314</td>
<td>England: Tudors and Stuarts</td>
<td>3</td>
</tr>
<tr>
<td>HIST 318</td>
<td>Early American Republic</td>
<td>3</td>
</tr>
<tr>
<td>HIST 319</td>
<td>Civil War &amp; Reconstruction</td>
<td>3</td>
</tr>
<tr>
<td>HIST 330</td>
<td>The Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>HIST 338</td>
<td>Women &amp; Islam Mid East to 1900</td>
<td>3</td>
</tr>
<tr>
<td>HIST 339</td>
<td>Ottoman Empire in 19th Century</td>
<td>3</td>
</tr>
<tr>
<td>HIST 343</td>
<td>Germany Before Hitler</td>
<td>3</td>
</tr>
<tr>
<td>HIST 354</td>
<td>The United States and Vietnam</td>
<td>3</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Emerg of Modern U.S., 1876-1916</td>
<td>3</td>
</tr>
<tr>
<td>HIST 370</td>
<td>Women in Am-Hist Perspective</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Aspects of the Holocaust</td>
<td>3</td>
</tr>
<tr>
<td>HIST 389</td>
<td>Nazi Germany</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3121</td>
<td>Polish History Since 1800</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3125</td>
<td>Modern East-Central Europe</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3130</td>
<td>Armenia Ancient Medieval World</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3502</td>
<td>The Middle East 570 to 1800 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3511</td>
<td>Modern Middle East, 1918-1945</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3512</td>
<td>Modern Middle East, 1945-1991</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3520</td>
<td>Lebanon in Modern Middle East</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3635</td>
<td>The 1960s in America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3651</td>
<td>Women Leadership/Social Change</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3695</td>
<td>American City</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3750</td>
<td>Modern Warfare</td>
<td>3</td>
</tr>
<tr>
<td>HPS 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>HPS 440</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>HUM 261</td>
<td>Honors: West Cult I: Origins</td>
<td>3</td>
</tr>
<tr>
<td>HUM 262</td>
<td>Honors: Western Culture II</td>
<td>3</td>
</tr>
<tr>
<td>HUM 263</td>
<td>Honors: Western Cult III</td>
<td>3</td>
</tr>
<tr>
<td>HUM 264</td>
<td>Honors: West Cult IV: Mod Era</td>
<td>3</td>
</tr>
<tr>
<td>HUM 389</td>
<td>Nazi Germany</td>
<td>3</td>
</tr>
<tr>
<td>LIBS 136</td>
<td>Bad Decisions</td>
<td>3</td>
</tr>
<tr>
<td>LIBS 138</td>
<td>Wild Thing: Attitudes - Animals</td>
<td>3</td>
</tr>
<tr>
<td>MKT 382</td>
<td>Understanding Customers</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 201</td>
<td>Intro Comparative Government</td>
<td>3-4</td>
</tr>
<tr>
<td>POL 300</td>
<td>Political Analysis</td>
<td>3</td>
</tr>
<tr>
<td>POL 303</td>
<td>Justice</td>
<td>3</td>
</tr>
<tr>
<td>POL 304</td>
<td>American Political Thought</td>
<td>3</td>
</tr>
<tr>
<td>POL 306</td>
<td>Political Ideologies</td>
<td>3</td>
</tr>
<tr>
<td>POL 308</td>
<td>Moral and Political Dilemmas</td>
<td>2-3</td>
</tr>
<tr>
<td>POL 310</td>
<td>Modern Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>POL 312</td>
<td>Legislative Process</td>
<td>3</td>
</tr>
<tr>
<td>POL 315</td>
<td>The American Presidency</td>
<td>3</td>
</tr>
<tr>
<td>POL 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL 328</td>
<td>Pub Opinion and Press Groups</td>
<td>3</td>
</tr>
<tr>
<td>POL 329</td>
<td>Politics and the Media</td>
<td>3</td>
</tr>
<tr>
<td>POL 362</td>
<td>Women, Politics, and the Law</td>
<td>3</td>
</tr>
<tr>
<td>POL 450</td>
<td>Revolution</td>
<td>3</td>
</tr>
<tr>
<td>POL 467</td>
<td>Food Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>POL 487</td>
<td>Comparative Enviro Policy</td>
<td>3</td>
</tr>
<tr>
<td>POL 494</td>
<td>Internship Seminar</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 300</td>
<td>Life-Span Developmental Psych</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Psyc of Interpersonal Relation</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 405</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 412</td>
<td>Psychology of Aging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 440</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 455</td>
<td>Health Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 4305</td>
<td>Psychology in the Workplace</td>
<td>3</td>
</tr>
<tr>
<td>RELS 338</td>
<td>Women &amp; Islam in MidEast to 1900</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 263</td>
<td>Western Culture III</td>
<td>3</td>
</tr>
<tr>
<td>SOC 264</td>
<td>West Cult IV: The Modern Era</td>
<td>3</td>
</tr>
<tr>
<td>SOC 308</td>
<td>Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOC 382</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>SOC 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>SOC 412</td>
<td>Men and Masculinities</td>
<td>3</td>
</tr>
<tr>
<td>SOC 413</td>
<td>Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>SOC 435</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 440</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 443</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>SOC 445</td>
<td>The Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 453</td>
<td>Sociology of Law</td>
<td>3</td>
</tr>
<tr>
<td>SOC 497</td>
<td>Senior Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>SOC 4555</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>SPEE 310</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>STS 308</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>STS 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>STS 430</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>STS 3695</td>
<td>The American City</td>
<td>3</td>
</tr>
<tr>
<td>WGST 338</td>
<td>Women &amp; Islam Mid East to 1900</td>
<td>3</td>
</tr>
<tr>
<td>WGST 362</td>
<td>Women, Politics, and the Law</td>
<td>3</td>
</tr>
<tr>
<td>WGST 370</td>
<td>Women in America-Hist Perspect</td>
<td>3</td>
</tr>
<tr>
<td>WGST 405</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>WGST 406</td>
<td>Culture and Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>WGST 412</td>
<td>Men and Masculinity</td>
<td>3</td>
</tr>
<tr>
<td>WGST 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>WGST 4555</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3130</td>
<td>Armenia Ancient Medieval World</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3135</td>
<td>The American Presidency</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3140</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3145</td>
<td>Pub Opinion and Press Groups</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3148</td>
<td>Politics and the Media</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3150</td>
<td>Women, Politics, and the Law</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3155</td>
<td>Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3156</td>
<td>Food Politics and Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Humanities and the Arts [6 credits]**

1. Students are able to demonstrate foundational knowledge of the subject area including the use of specialized vocabulary relevant to the area of study.

2. Students are able to demonstrate the ability for close reading of primary sources, whether works of literature, philosophical discourses, works of art, film, music, media studies, and/or digital arts.
3. Students are able to think critically and to demonstrate in writing well-reasoned or argued essays/exercises/papers.

4. Students are able to contextualize selected texts, works of art, music and/or film in relation to their production and reception (May include historical, geographical, cultural and cross-cultural context).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAS 239</td>
<td>Intro to Lit: African American</td>
<td>3</td>
</tr>
<tr>
<td>ARBC 335</td>
<td>Arabic Civilization</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 101</td>
<td>Western Art to 1400</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 102</td>
<td>Western Art from 1400</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 103</td>
<td>Arts of Asia</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 106</td>
<td>History of Western Architect</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 312</td>
<td>Art of Japan</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 315</td>
<td>Early Chinese Art and Archaeol</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 335</td>
<td>Women in Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>COML 433</td>
<td>Writing Women in Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>COMP 223</td>
<td>Intro to Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 200</td>
<td>Intro to English Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 223</td>
<td>Intro to Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 230</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 231</td>
<td>Intro to Literature: Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 232</td>
<td>Intro to Literature: Fiction</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 233</td>
<td>Intro to Literature: Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 239</td>
<td>Intro to Lit: African American</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 311</td>
<td>British Lit: Beowulf to Milton</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 312</td>
<td>British Lit: Milton to 1900</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 313</td>
<td>American Lit: Colonial to 1900</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>Brit &amp; Amer Lit: 1900-Present</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 349</td>
<td>The Bible In/As Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 451</td>
<td>Maj Am Civil War to WWI</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 250</td>
<td>Elem Ed Vis &amp; Perf Arts</td>
<td>3</td>
</tr>
<tr>
<td>FREN 332</td>
<td>French Cinema</td>
<td>3</td>
</tr>
<tr>
<td>FREN 339</td>
<td>Francophone Lit and Civil</td>
<td>3</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Western Culture I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 262</td>
<td>Western Culture II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 309</td>
<td>The Russian Revolutions</td>
<td>3</td>
</tr>
<tr>
<td>HIST 343</td>
<td>Germany Before Hitler</td>
<td>3</td>
</tr>
<tr>
<td>HIST 312</td>
<td>Polish History Since 1800</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3390</td>
<td>20th c European Women's Hist</td>
<td>3</td>
</tr>
<tr>
<td>HUM 201</td>
<td>Religions of the World</td>
<td>3</td>
</tr>
<tr>
<td>HUM 240</td>
<td>Film and Society</td>
<td>3</td>
</tr>
<tr>
<td>HUM 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>HUM 261</td>
<td>Honors: West Cult I: Origins</td>
<td>3</td>
</tr>
<tr>
<td>HUM 262</td>
<td>Honors: Western Culture II</td>
<td>3</td>
</tr>
<tr>
<td>HUM 312</td>
<td>Art of Japan</td>
<td>3</td>
</tr>
<tr>
<td>HUM 315</td>
<td>Early Chinese Art and Archaeol</td>
<td>3</td>
</tr>
<tr>
<td>HUM 335</td>
<td>Women in Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>HUM 349</td>
<td>Bible In/As Literature</td>
<td>3</td>
</tr>
<tr>
<td>HUM 433</td>
<td>Writing Women in Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>JASS 240</td>
<td>Film and Society</td>
<td>3</td>
</tr>
</tbody>
</table>

**Intersections [6 credits]**

1. Students are able to describe how ways of knowing and creating knowledge differ across disciplines and cultures. Students are able to demonstrate knowledge, skills, and attributes needed to understand diverse local or global contexts.

2. Students are able to critically evaluate the narratives, values, artifacts, processes, technologies or structures that may create a just and sustainable society.

3. Students are able to creatively integrate theory and practice from across disciplines or from experiences outside of the classroom to address complex questions.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAS 300</td>
<td>Introduction to AAAS</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 388</td>
<td>W. African Music: Trad.&amp;Glob.</td>
<td>3</td>
</tr>
<tr>
<td>AAST 3150</td>
<td>Intro to Arab American Studies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Intro To Women's &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 350</td>
<td>Prehistoric Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 370</td>
<td>Indians of North America</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 376</td>
<td>Power &amp; Privilege in SE Mich</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 421</td>
<td>Education and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 430</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 481</td>
<td>Gender and Globalization</td>
<td>3</td>
</tr>
<tr>
<td>ARBC 332</td>
<td>Arabic Cinema</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 305</td>
<td>The Arts &amp; Culture of Detroit</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 311</td>
<td>Art of China</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ARTH 312</td>
<td>Art of Japan</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 315</td>
<td>Early Chinese Art and Archaeol</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 322</td>
<td>Roman Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 335</td>
<td>Women in Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 416</td>
<td>Early Mod Jpn Paint&amp;Wood Prnts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 426</td>
<td>City of Ancient Rome</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 403</td>
<td>Business Conditions Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 410</td>
<td>Diversity Issues Health Care</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 479</td>
<td>Intro to Artificial Intel</td>
<td>3</td>
</tr>
<tr>
<td>COMM 364</td>
<td>Writing for Civic Literacy</td>
<td>3</td>
</tr>
<tr>
<td>COMM 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>COMM 481</td>
<td>Gender and Globalization</td>
<td>3</td>
</tr>
<tr>
<td>COMP 364</td>
<td>Writing for Civic Literacy</td>
<td>3</td>
</tr>
<tr>
<td>COMP 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>COMP 475</td>
<td>Supporting Literacies</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 443</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 476</td>
<td>Inside Out Prison Exchange</td>
<td>4</td>
</tr>
<tr>
<td>ECE 329</td>
<td>Intro to Computer Music</td>
<td>4</td>
</tr>
<tr>
<td>ECON 442</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 414</td>
<td>Early Child Ed Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>EDC 439</td>
<td>Child Maltreatment and Trauma</td>
<td>3</td>
</tr>
<tr>
<td>EDC 460</td>
<td>Educating the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 364</td>
<td>Writing for Civic Literacy</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 394</td>
<td>Psychology and Theater</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 400</td>
<td>Appl Business Tech for Engr</td>
<td>3</td>
</tr>
<tr>
<td>ENST 301</td>
<td>Concepts of Environmentalism</td>
<td>3</td>
</tr>
<tr>
<td>ENST 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>ENST 467</td>
<td>Food Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>ENST 487</td>
<td>Comparative Enviro Policy</td>
<td>3</td>
</tr>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking&amp;Behav</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td>3</td>
</tr>
<tr>
<td>FREN 332</td>
<td>French Cinema</td>
<td>3</td>
</tr>
<tr>
<td>HHS 350</td>
<td>Comm Organizing for Health</td>
<td>3</td>
</tr>
<tr>
<td>HIST 305</td>
<td>The Arts &amp; Culture of Detroit</td>
<td>3</td>
</tr>
<tr>
<td>HIST 338</td>
<td>Women&amp;Islam Mid East to 1900</td>
<td>3</td>
</tr>
<tr>
<td>HIST 370</td>
<td>Women in Am-Hist Perspective</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Aspects of the Holocaust</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3502</td>
<td>The Middle East 570 to 1800 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3632</td>
<td>The US in the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3651</td>
<td>Women Leadership/Social Change</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3671</td>
<td>Intro to Arab American Studies</td>
<td>3</td>
</tr>
<tr>
<td>HPS 475</td>
<td>Diversity Iss in Mental Health</td>
<td>3</td>
</tr>
<tr>
<td>HUM 300</td>
<td>Intro to AAAS</td>
<td>3</td>
</tr>
<tr>
<td>HUM 303</td>
<td>Intro to Women’s &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>HUM 305</td>
<td>The Arts &amp; Culture of Detroit</td>
<td>3</td>
</tr>
<tr>
<td>HUM 311</td>
<td>Art of China</td>
<td>3</td>
</tr>
<tr>
<td>HUM 312</td>
<td>Art of Japan</td>
<td>3</td>
</tr>
<tr>
<td>HUM 315</td>
<td>Early Chinese Art and Archaeol</td>
<td>3</td>
</tr>
<tr>
<td>HUM 335</td>
<td>Women in Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>HUM 338</td>
<td>W. African Music: Trad.&amp;Glob.</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 421</td>
<td>Eng Economy and Dec Anlys</td>
<td>3</td>
</tr>
<tr>
<td>JASS 336</td>
<td>Film and Music</td>
<td>3</td>
</tr>
<tr>
<td>JASS 387</td>
<td>Gender,Sex,Power Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>JASS 403</td>
<td>Issues in Cyberspace</td>
<td>3</td>
</tr>
<tr>
<td>JASS 406</td>
<td>History&amp;Theory of Documentary</td>
<td>3</td>
</tr>
<tr>
<td>MHIS 336</td>
<td>Film and Music</td>
<td>3</td>
</tr>
<tr>
<td>MHIS 388</td>
<td>W. African Music: Trad.&amp;Glob.</td>
<td>3</td>
</tr>
<tr>
<td>MKT 457</td>
<td>Glob Mkting&amp;Consumr Cultre</td>
<td>3</td>
</tr>
<tr>
<td>OB 404</td>
<td>Intl Dimensions of Org Behav</td>
<td>3</td>
</tr>
<tr>
<td>POL 303</td>
<td>Justice</td>
<td>3</td>
</tr>
<tr>
<td>POL 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL 334</td>
<td>Organizing and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>POL 467</td>
<td>Food Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>POL 487</td>
<td>Comparative Enviro Policy</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 303</td>
<td>Intro to Women’s &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 394</td>
<td>Psychology and Theater</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 405</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 426</td>
<td>Applied Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 446</td>
<td>Human Sexual Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 3955</td>
<td>Diversity and the Workplace</td>
<td>3</td>
</tr>
<tr>
<td>RELS 335</td>
<td>Women in Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>RELS 388</td>
<td>Women&amp;Islam in MidEast to 1900</td>
<td>3</td>
</tr>
<tr>
<td>SOC 303</td>
<td>Intro to Women’s &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>SOC 443</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>SOC 445</td>
<td>The Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 475</td>
<td>Diversity ISS in Mental Health</td>
<td>3</td>
</tr>
<tr>
<td>SOC 476</td>
<td>Inside Out Prison Exchange</td>
<td>4</td>
</tr>
<tr>
<td>SOC 481</td>
<td>Gender and Globalization</td>
<td>3</td>
</tr>
<tr>
<td>SOC 4555</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 450</td>
<td>Hispanic Cinema</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 451</td>
<td>Spanish Film</td>
<td>3</td>
</tr>
<tr>
<td>STS 301</td>
<td>Concepts of Environmentalism</td>
<td>3</td>
</tr>
<tr>
<td>STS 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>STS 430</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>STS 430</td>
<td>Urban and Regional Studies</td>
<td>3</td>
</tr>
<tr>
<td>URS 300</td>
<td>Intro to Women’s &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 335</td>
<td>Women in Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 338</td>
<td>Women&amp;Islam Mid East to 1900</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 370</td>
<td>Women in America-Hist Perspect</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 387</td>
<td>Gender,Sex,Power Screen Studies</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 405</td>
<td>Gender Roles</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 446</td>
<td>Marriage and Family Problems</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 476</td>
<td>Inside Out Prison Exchange</td>
<td>4</td>
</tr>
<tr>
<td>WMGT 481</td>
<td>Gender and Globalization</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 3651</td>
<td>Women/Leadership/Social Change</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 3955</td>
<td>Diversity and the Workplace</td>
<td>3</td>
</tr>
<tr>
<td>WMGT 4555</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
</tbody>
</table>
Capstone Experience [3 credits]

1. Students are able to identify, obtain, research, and describe major issues associated with a specific topic of inquiry.
2. Students are able to identify and discuss critical questions leading to a deeper engagement in the study of a specific topic of inquiry or technology.
3. Students are able to apply knowledge, skills and abilities in the creation and execution of a concrete project informed by specific topic of inquiry.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAS</td>
<td>Seminar: African Diaspora</td>
<td>3</td>
</tr>
<tr>
<td>AAST</td>
<td>Arab American Identity</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Anthropology Capstone</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Museum Practice Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Museum Practice Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>BCHM</td>
<td>Mech. Chronic Human Disease</td>
<td>3</td>
</tr>
<tr>
<td>BCHM</td>
<td>Complex Systems</td>
<td>3</td>
</tr>
<tr>
<td>BENG</td>
<td>Senior Design</td>
<td>4</td>
</tr>
<tr>
<td>BIOL</td>
<td>Mech. Chronic Human Disease</td>
<td>3</td>
</tr>
<tr>
<td>BIOL</td>
<td>Applied &amp; Environ Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL</td>
<td>Behavior and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>BIOL</td>
<td>Capstone Course in Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL</td>
<td>Capstone Research Experience</td>
<td>3</td>
</tr>
<tr>
<td>BIOL</td>
<td>Capstone Teaching Experience</td>
<td>3</td>
</tr>
<tr>
<td>BPS</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>CHEM</td>
<td>Adv Org Syn &amp; Character Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM</td>
<td>Adv Inorg Synth &amp; Char Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM</td>
<td>Presentations in Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>CIS</td>
<td>Design Seminar I</td>
<td>2</td>
</tr>
<tr>
<td>CIS</td>
<td>Design Seminar II</td>
<td>2</td>
</tr>
<tr>
<td>CIS</td>
<td>Design Seminar for SE I</td>
<td>2</td>
</tr>
<tr>
<td>CIS</td>
<td>Design Seminar for SE II</td>
<td>2</td>
</tr>
<tr>
<td>CIS</td>
<td>Cap Sem for Data Sci I</td>
<td>2</td>
</tr>
<tr>
<td>CIS</td>
<td>Cap Proj for Data Sci II</td>
<td>2</td>
</tr>
<tr>
<td>COMM</td>
<td>20th Century Public Argument</td>
<td>3</td>
</tr>
<tr>
<td>CRJ</td>
<td>Criminal Justice Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>ECE</td>
<td>Electrical Engineering Des I</td>
<td>2</td>
</tr>
<tr>
<td>ECE</td>
<td>Computer Engineering Des I</td>
<td>2</td>
</tr>
<tr>
<td>ECE</td>
<td>Electrical Engin Design II</td>
<td>2</td>
</tr>
<tr>
<td>ECE</td>
<td>Computer Engin Design II</td>
<td>2</td>
</tr>
<tr>
<td>ECE</td>
<td>Robotics Engineering Design I</td>
<td>2</td>
</tr>
<tr>
<td>ECE</td>
<td>Robotics Engineering Design II</td>
<td>2</td>
</tr>
<tr>
<td>ECON</td>
<td>Monetary Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON</td>
<td>Introduction to Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>ECON</td>
<td>Economics of the Labor Sector</td>
<td>3</td>
</tr>
<tr>
<td>ECON</td>
<td>History of Economic Thought</td>
<td>3</td>
</tr>
<tr>
<td>EDD</td>
<td>Teach Strategies Early Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD</td>
<td>Practicum in Early Child Ed</td>
<td>1</td>
</tr>
<tr>
<td>EDD</td>
<td>Teach of Sci in the Second Grd</td>
<td>2-3</td>
</tr>
<tr>
<td>EDD</td>
<td>Tch of the Soc Stud in Sec Sch</td>
<td>2-3</td>
</tr>
<tr>
<td>EDN</td>
<td>Assessment of the Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDT</td>
<td>Intro Teaching Learning Online</td>
<td>3</td>
</tr>
<tr>
<td>ENGL</td>
<td>Shakespeare I: Earlier Works</td>
<td>3</td>
</tr>
<tr>
<td>ENGL</td>
<td>Shakespeare's Contemporaries</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL</td>
<td>Restoration Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENGL</td>
<td>18th-Century English Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENGL</td>
<td>Anglo-Irish Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL</td>
<td>Maj Am Auth Civ War to WWI</td>
<td>3</td>
</tr>
<tr>
<td>ENGL</td>
<td>Postmodern Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENST</td>
<td>Environmental Internship</td>
<td>1-9</td>
</tr>
<tr>
<td>ENST</td>
<td>Seminar in Environ Topics</td>
<td>2</td>
</tr>
<tr>
<td>ESCI</td>
<td>Capstone Research Experience</td>
<td>3</td>
</tr>
<tr>
<td>EXPS</td>
<td>Science Capstone</td>
<td>3</td>
</tr>
<tr>
<td>FREN</td>
<td>France of Today</td>
<td>3</td>
</tr>
<tr>
<td>HHS</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td>European Encounters, 1400-1800</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td>Seminar: African Diaspora</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td>Feminism &amp; Mod. Mid. East</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td>Sem in US Women's History</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td>Arab American Identities</td>
<td>3</td>
</tr>
<tr>
<td>HIST</td>
<td>Senior Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HPS</td>
<td>HPS Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HPS</td>
<td>Reproductive Health Policy</td>
<td>3</td>
</tr>
<tr>
<td>HPS</td>
<td>Diversity Iss in Mental Health</td>
<td>3</td>
</tr>
<tr>
<td>IMSE</td>
<td>Design Project I</td>
<td>2</td>
</tr>
<tr>
<td>IMSE</td>
<td>Design Project II</td>
<td>2</td>
</tr>
<tr>
<td>JASS</td>
<td>Advanced Media Production</td>
<td>3</td>
</tr>
<tr>
<td>MATH</td>
<td>Capstone in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ME</td>
<td>Senior Design I</td>
<td>4</td>
</tr>
<tr>
<td>MICR</td>
<td>Applied &amp; Environ Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS</td>
<td>Advanced Physics Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>POL</td>
<td>Capstone in Political Science</td>
<td>3</td>
</tr>
<tr>
<td>POL</td>
<td>Lab in Developmental Psych</td>
<td>3</td>
</tr>
<tr>
<td>PSYC</td>
<td>Experimental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC</td>
<td>Capstone in Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC</td>
<td>Diversity ISS in Mental Health</td>
<td>3</td>
</tr>
<tr>
<td>SOC</td>
<td>Senior Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>SPAN</td>
<td>Spanish Civilization and Cult</td>
<td>3</td>
</tr>
<tr>
<td>SPEE</td>
<td>20th Century Public Argument</td>
<td>3</td>
</tr>
<tr>
<td>STS</td>
<td>Economics of the Labor Sector</td>
<td>3</td>
</tr>
<tr>
<td>URS</td>
<td>Sr Capstone in Community Rsch</td>
<td>3</td>
</tr>
<tr>
<td>WGST</td>
<td>Gender, Pwr &amp; Intl Rsch</td>
<td>3</td>
</tr>
<tr>
<td>WGST</td>
<td>Reproductive Health Policy</td>
<td>3</td>
</tr>
<tr>
<td>WGST</td>
<td>Diversity Iss in Mental Health</td>
<td>3</td>
</tr>
<tr>
<td>WGST</td>
<td>Sem in US Women's History</td>
<td>3</td>
</tr>
</tbody>
</table>

Goals for the Undergraduate Experience

Undergraduate education at the University of Michigan-Dearborn is based on the belief that the benefits of academic work are enhanced when classroom and intellectual rigor interact with community engagement and experiential learning. The University of Michigan-Dearborn is uniquely
situated to address the complex challenges facing the metropolitan region by offering students rigorous academic offerings as well as the opportunity to apply that knowledge in real-world situations. Our goal is to graduate students who are able to apply theoretical and discipline-specific knowledge to discover creative solutions to problems and to successfully communicate those ideas both individually and as a part of a collaborative effort.

Undergraduate programs at UM-Dearborn provide students with the opportunity to develop particular skills and abilities; to think critically and creatively to solve problems; to cultivate an appreciation of aesthetic and ethical values; and to acquire both breadth of knowledge and the depth of understanding gained through the study of one or more academic disciplines. The UM-Dearborn faculty has a common commitment across specific courses, extra-curricular activities, and community-oriented experiences.

The goals for undergraduate student learning and experiences at UM-Dearborn are:

- Core Knowledge
- Critical Thinking
- Communication
- Collaboration
- Cultural Understanding
- Citizenship

Goals

1. **Core Knowledge**
   Undergraduate student learning goal #1, “Core Knowledge,” acknowledges that, each discipline at the University of Michigan-Dearborn, requires students to gain knowledge of and experience with their chosen academic discipline. Although the content-area goals within each discipline will likely be unique, all degree programs share fundamental educational values that include:
   - acquiring rigorous, discipline-specific inquiry skills.
   - learning to apply theories to and construct models for addressing real-world problems.
   - discussing and producing intellectual work using discipline-specific conventions for writing, research and communicating.

2. **Critical and Creative Thinking**
   Undergraduate student learning goal #2, “Critical and Creative Thinking,” acknowledges the students’ need to gain experience in problem solving, and to engage in analysis, synthesis and evaluation in creative ways using an ethical framework. Development of such habits of mind will be demonstrated by:
   - the ability to seek information and use inquiry to systematically explore situations, collect and analyze evidence, and make informed evaluations.
   - the synthesis of knowledge within and across courses and programs and the integration of theory and practice.
   - the ability to use qualitative and quantitative reasoning to develop a clear understanding of the problem being studied.
   - the generation of creative solutions to problems through original, imaginative, innovative, or artistic effort.
   - the ability to use ethical reasoning to generate meaningful solutions to problems.

3. **Communication**
   Undergraduate student learning goal #3, “Communication,” recognizes that there are a wide variety of modes of communication, including written and oral communication that are continually being shaped and expanded through rapid changes in technology. Student mastery of these myriad ways of communicating ideas and intellectual products will be demonstrated through the development of:
   - the ability to communicate clearly and effectively to an identified audience both in writing and orally.
   - the creation of communication that demonstrates content knowledge, deep reflection, creativity and critical thinking.
   - the appropriate use of technology in maximizing the clarity, impact and accessibility of student ideas.

4. **Collaboration**
   Undergraduate student learning goal #4, “Collaboration,” acknowledges that collaborating with peers, faculty and community members is an important part of the learning process in all disciplines. This element in the University’s educational plan for students will be promoted by providing students the opportunity to:
   - work actively and effectively as part of a team to answer questions and solve problems.
   - develop the ability to critically and effectively evaluate the collaborative products and processes.
   - grapple effectively with differences and diversity and resolve conflict that occurs in collaborative efforts.

5. **Cultural Understanding**
   Undergraduate student learning goal #5 “Cultural Understanding,” acknowledges that appreciating global and cultural diversity within historical, artistic, and societal contexts is critical to individual and societal success in both professional and personal areas of life. Student achievement in this realm will be gained through:
   - reflecting on experiences with diversity to demonstrate knowledge and sensitivity.
   - demonstrating awareness of how diversity emerges within and across cultures.
   - developing the ability to collaborate in a global setting through awareness of language and cultural differences.

6. **Citizenship**
   Undergraduate student learning goal #6, “Citizenship,” recognizes that engagement occurs in many ways for students, and manifests itself in different ways for each academic program and discipline. Active meaningful student involvement in course, community and societal affairs will also encourage student lifelong learning by providing the opportunity to use their skills, abilities and knowledge in a variety of roles and environments. Acquisition of these skills will be promoted through:
   - engagement in case-study, scenario analyses and problem solving activities.
   - participation in curricular and co-curricular work integral to the metropolitan mission of UM-Dearborn.
   - exposure to the diversity, strengths and challenges of the metropolitan community.
   - experience in engaging in activities that emphasize the habits of lifelong learning.

Admissions & Orientation

Office of Admissions and Orientation
4901 Evergreen Road
Campus Visits/Tours

Visiting campus is the best way to explore what we offer you! The Office of Admissions and Orientation offers multiple visit options. Choose the one that best fits your schedule by visiting our website at umdearborn.edu/visit.

Campus Visit Opportunities

- **Go Blue Fridays:** A special campus visit for high school students which includes a presentation and campus tour.
- **Transfer Nights:** Designed especially for students interested in transferring.
- **Daily Campus Tours:** Walking tours are given by current students at various times throughout the week. Call 313-593-5100 to make a reservation.
- **Individual Appointments:** If you prefer a one-on-one meeting with an admissions counselor, appointments are available Monday through Friday. Walk-in counseling is available on select Saturdays.
- **Group Visits:** Group visits (10 or more students in 8th grade or above) can be arranged to include an Admissions informational session and a walking tour led by current students. Other campus offices are available to provide information by request. Please request a group visit at least two weeks in advance. A request form is available online at umdearborn.edu/visit.

Degrees & Majors Offered

**Degrees**

- Bachelor of Arts, AB
- Bachelor of Business Administration, BBA
- Bachelor of General Studies, BGS
- Bachelor of Science, BS
- Bachelor of Science in Engineering, BSE

The following undergraduate majors and other fields of concentration offered are shown with the degree designations to which they normally lead:

**Majors**

- Accounting (p. 157), BBA
- African and African American Studies (p. 73), AB
- Anthropology (p. 75), AB
- Applied Statistics (p. 76), AB
- Art History (p. 79), AB
- Behavioral and Biological Science (p. 83), AB
- Behavioral Sciences (p. 81), AB
- Biochemistry (p. 84), BS
- Bioengineering (p. 236), BSE
- Biological Sciences (p. 85), BS
- Business Studies (p. 158) (2nd major only), AB
- Chemistry (A.C.S. Certified) (p. 89), BS
- Chemistry (Instructional) (p. 90), BS
- Child Life (p. 174), AB
- CIS Mathematics (p. 238) (2nd degree only), BS
- Communications (p. 92), AB
- Community Health Education (p. 176), AB
- Computer and Information Science (p. 240), BS
- Computer Engineering (p. 239), BSE
- Criminology and Criminal Justice (p. 95), AB
- Cybersecurity and Information Assurance (http://catalog.umd.umich.edu/undergraduate/college-engineering-computer-science/cyber-security-information-assurance), BS
- Data Science (p. 244), BS
- Digital Marketing (p. 159), BBA
- Early Childhood (p. 177), AB, BS, Elementary Certification
- Economics (p. 97), AB
- Educational Studies (p. 179), AB
- Electrical Engineering (p. 246), BSE
- Elementary Certification (p. 180), Certification only
- Engineering Mathematics (p. 247) (2nd degree only), BSE
- English (p. 98), AB
- Environmental Science (p. 102), BS
- Environmental Studies (p. 104), AB
- Finance (p. 161), BBA
- French Studies (p. 107), AB
- General Business (p. 163), BBA
- General Studies (p. 192), BGS (College of Education, Health, and Human Services)
- Geological Sciences (p. 108), BS
- Health Policy Studies (p. ), AB
- Hispanic Studies (p. 112), AB
- History (p. 113), AB
- Human Resource Management (p. 164), BBA
- Humanities (p. 115), AB
- Industrial and Systems Engineering (p. 248), BSE
- Information Technology Management (p. 165), BBA
- Integrated Science (p. 117), BS
- Instructional Technology (p. 198), AB
- International Studies (p. 118), AB
- Journalism and Screen Studies (p. 122), AB
- Language Arts (p. 186), AB, BS, Elementary Certification
- Liberal Studies (p. 126), AB, BS
- Management (p. 166), BBA
- Manufacturing Engineering (p. 250), BSE
- Marketing (p. 167), BBA
- Mathematics (p. 127), AB, BS
- Mathematics Studies (p. 187), AB, BS, Elementary Certification
- Mechanical Engineering (p. 252), BSE
- Microbiology (p. 129), BS
- Philosophy (p. 132), AB
- Physics (p. 133), BS
- Political Science (p. 135), AB
- Psychology (p. 137), AB
Admissions counselors are willing to discuss the educational opportunities available at UM-Dearborn with prospective students. Persons interested in enrollment should arrange a one-on-one appointment by calling the Office of Admissions and Orientation at 313-593#5100. This includes students in high school or college or anyone wishing to return to school.

Degree-Seeking Student

A student who has been admitted as a freshman or transfer into a regular degree program in an academic unit is called a degree-seeking student. After enrolling, a student may change from one degree program to another by following established procedures, as long as he/she is accepted by the new unit.

Freshman Student Admission

Admission Procedures

UM-Dearborn welcomes applications from prospective freshmen. The admission of all students is on a selective basis; admissions officials consider many factors in reaching individual decisions for admission.

Sources of information used in evaluating a candidate's qualifications include the secondary school record (GPA, rigor of curriculum and trend of grades), comments of the secondary school counselor or principal, scores achieved on either the Scholastic Aptitude Test (SAT) or the American College Test (ACT), and any evidence of special abilities.

Incoming freshmen are expected to present a final official high school transcript as proof of graduating from an accredited high school or preparatory school. The requirement of high school graduation may be waived for adults, provided there is evidence that they are likely to be successful at the University. This evidence will in most cases take the form of the General Educational Development (GED) test results. The minimum GED test score for admission consideration is 600.

Information provided on the Application for Undergraduate Admission and Scholarships must be accurate and complete. Falsification or omission of information or credentials may result in the revocation of admission.

Application Deadline

It is recommended that students apply for admission online and are eligible to do so as soon as they complete their junior year in high school.

The application deadline for priority scholarship consideration is December 15 of the student's senior year in high school. The official admission deadline date for any semester is the first day of class of that semester.

It is free and easy to apply online (umdearborn.edu/apply), and students may check the application status online. Paper applications may also be obtained in the Office of Admissions and Orientation or printed from the website.

Official high school transcripts are needed at the time of application for freshman admission. Students seeking admission to UM-Dearborn that took coursework from other institutions of higher learning must also submit official transcripts from all previous institutions. Official corrections made to transcripts by previous schools, whether high schools, colleges, or universities, must be submitted to the University no later than six months after the first day of classes. Students whose final official transcripts are not received will have a hold placed on their student account which prevents course registration for future semesters.

The Admissions staff welcomes the opportunity to meet with prospective students. Appointments should be arranged in advance by calling the Office of Admissions and Orientation at 313-593#5100.

Admission Requirements

Students interested in enrolling at UM-Dearborn should have completed the Michigan Merit Curriculum as established by the State of Michigan (or equivalent coursework if outside of Michigan). Students graduating from a high school outside of Michigan should pay close attention to the requirements listed below.

A strong high school background in basic academic subjects is important in a student's preparation for college study. The following college preparatory high school curriculum should be followed:

- **College Preparatory English:** Minimum four years required.
- **Mathematics:** Minimum four years required (at least two years must be in college preparatory mathematics).
- **Biological and Physical Sciences:** Minimum three years required with four years recommended.
- **History and Social Sciences:** Minimum three years required.
- **Foreign Language:** Minimum two years strongly recommended.
- **Computer Science:** At least one semester is required; one year recommended.
- **Electives:** Additional work in any subjects offered for high school credit to bring the total for the four high school years to the equivalent of at least 15 units.

Special Recommendations

Students who intend to pursue their college work in business administration, computer science, engineering, or physical and natural sciences are encouraged to include the following subjects in their high school preparation:

- **Mathematics:** Coursework should include two years of algebra, one year of geometry and at least one semester of trigonometry.
Online payment of the deposit can be submitted at umdearborn.edu. The deposit is not refundable after the deadline dates.

For the winter semester, the deadline for deposit is December 1. For the summer semester, the deadline for deposit is April 1. In order to guarantee a space in an incoming class, a $50 enrollment deposit is required to submit. The deposit should accompany the student's affirmative reply on the Admissions Acceptance Form, which is sent to the student at the time of admission. The applicant may confirm at any time. The $50 enrollment deposit is applied to tuition/fees for that semester. The $50 enrollment deposit is not refundable after May 1 for fall semester admitted students regardless of when the deposit is submitted.

For the winter semester, the deadline for deposit is December 1. For the summer semester, the deadline for deposit is April 1. The deposit is not refundable after the deadline dates.

Online payment of the deposit can be submitted at umdearborn.edu/deposit.

## Transfer Student Admision

### Admission Requirements

The requirements for admission to UM-Dearborn depend upon the particular program of study to be followed. Admission is based on preparation, ability, and probability of success. All applicants should be in good standing and eligible to return to their previous institution.

Each of the four academic colleges of the University has its own GPA admission criteria:

<table>
<thead>
<tr>
<th>College Code</th>
<th>GPA Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASL</td>
<td>2.50</td>
</tr>
<tr>
<td>COB</td>
<td>2.70</td>
</tr>
<tr>
<td>CECS</td>
<td>2.75&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>CEHHS</td>
<td>2.75&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup> Students must also have a 2.75 recalculated math, science, and engineering GPA.

<sup>2</sup> Several select programs within CEHHS have a 2.50 GPA requirement. Contact the Office of Admissions and Orientation for more details.

Information provided on the Application for Undergraduate Admission and Scholarships must be accurate and complete. Falsification or omission of information or credentials may result in the revocation of admission.

### Admission Procedure

Prospective transfer students are required to submit an application for admission and an official transcript from each college or university previously attended. Failure to list all schools attended on the application may result in revocation of admission. To be considered, official transcripts must come directly from the previous college/university to UM-Dearborn's Office of Admissions and Orientation.

The prospective student is responsible for contacting each previous school attended to request that official transcripts be sent. While all transcripts are required for admission, only courses taken at an accredited college or university will be considered for transfer to the University of Michigan-Dearborn. UM-Dearborn uses the Transfer Credit Practices published by the American Association for Collegiate Registrars and Admission Officers (AACRAO) as a guideline to determine transferability of courses based on accreditation status and other criteria. A list of accredited U.S. and Canadian colleges and universities can be obtained from the U.S. Department of Education website at ope.ed.gov/accreditation.

It is free and easy to apply online (umdearborn.edu/apply), and students can check the application status online. Paper applications may be obtained in the Office of Admissions and Orientation or printed from the website.

When the application and all official transcripts have been received, they will be evaluated and the student will be notified regarding admission status.

Transfer students with less than 24 transferable credit hours will be required to submit complete high school records including SAT or ACT scores.

Admission granted while the student is enrolled at another institution is conditional and will become final only when the student meets the conditions set forth in the conditional admission letter and upon receipt of the admission letter.

---

**Biology and Physical Sciences:** Coursework should include one year of chemistry and at least one year of physics or biological science.

Applicants intending to pursue a college program in science or engineering who have not completed the recommended mathematics and chemistry units may still be admitted if they satisfy the general admission requirements. However, they will be expected to establish proficiency in these areas during their freshman year.

## Test Requirements

UM-Dearborn requires all prospective freshmen to submit scores from at least one standardized test: the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The student should make certain that the test results are forwarded to the UM-Dearborn Office of Admissions and Orientation (SAT code #1861; ACT code #2074).

The results of standardized achievement tests in specific subject areas are not required as part of the application process. However, all new freshmen enrolling at UM-Dearborn, must take the UM-Dearborn English Composition Examination and the Mathematics Placement Examination. These exams are for diagnostic and placement purposes. Placement exams are administered prior to a student's orientation and class registration.

## Advanced Placement (AP)

A prospective student who has exhibited outstanding performance in a particular subject area and has participated in the College Board's Advanced Placement Program (AP) may be considered for advanced college placement and credit. Such applicants should arrange to have their Advanced Placement Examination reports sent (use our college code of 1861) to the Office of Admissions and Orientation, where they will be reviewed in accordance with the regulations of the various academic departments. Advanced Placement credit will not be granted when the AP Exam is taken after the student's official date of high school graduation. For information on the college credit AP practices, visit umdearborn.edu/advancedplacement.

## International Baccalaureate

UM-Dearborn grants credit to students based on their IB scores. Students who participated in the IB program in high school should request that their scores be provided to the University for evaluation. Scores of 4 and above are considered for credit.

## Enrollment Deposit

In order to guarantee a space in an incoming class, a $50 enrollment deposit should accompany the student's affirmative reply on the Admissions Acceptance Form, which is sent to the student at the time of admission. The applicant may confirm at any time. For the fall semester, the deadline for deposit is May 1. Upon registration, this deposit will be applied to tuition/fees for that semester. The $50 enrollment deposit is not refundable after May 1 for fall semester admitted students regardless of when the deposit is submitted.

For the winter semester, the deadline for deposit is December 1. For the summer semester, the deadline for deposit is April 1. The deposit is not refundable after the deadline dates.

Online payment of the deposit can be submitted at umdearborn.edu/deposit.
by the Office of Admissions and Orientation of the final official transcript from the student’s former institution(s). It is the student’s responsibility to see that the final transcript is provided to the Office of Admissions and Orientation following the completion of all courses. **Students will not be allowed to register for subsequent terms until the final official transcript has been received.**

Official corrections made to transcripts by previous schools, whether high schools, colleges, or universities, must be submitted to the Office of Admissions and Orientation within six months of the first day of classes of the term of admission.

### Test Requirements

All new transfer students enrolling at UM-Dearborn must take the UM-Dearborn English Composition Examination; the Mathematics Placement Examination must be taken by all new students who plan to take Pre-Calculus or Calculus 1. These exams are for diagnostic and placement purposes. Placement exams are normally administered prior to each registration period.

### Transfer of Credits

Students transferring to UM-Dearborn from other two- or four-year institutions can use one or more of these resources below to ensure maximum number of transfer credits.

#### Course Transfer System

The Course Transfer System (CTS) (umdearborn.edu/cts) is a valuable resource. While it is not an official credit evaluation, the CTS can serve you in determining the transferability of courses from an accredited community college or four-year school. The information is always current and reflects courses that potentially transfer to UM-Dearborn, but does not necessarily indicate if or how these courses will be used toward your particular degree program.

#### Transfer Guides

Our Transfer Guides from select community colleges in Michigan outline courses that can be applied to specific majors. To view transfer guides by academic college for community colleges, visit the Transfer Hubs (see below).

#### Transfer Hubs

Students transferring to UM-Dearborn from a community college located in the metropolitan southeastern Michigan area should check out the customized websites for each of the community colleges. These sites can be accessed at umdearborn.edu/hubs.

#### Transfer Equivalency Worksheet

At the time of admission, a transfer student will receive a Transfer Equivalency Worksheet. This worksheet reflects only the overall hours potentially transferable to UM-Dearborn, but does not necessarily reflect the hours that will be used toward a degree program. An academic advisor will inform the student as to which hours actually fulfill program requirements. The number of hours that apply to a particular program will determine the number of additional UM-Dearborn hours necessary for degree completion.

### Maximum Transferable Credits

<table>
<thead>
<tr>
<th>Previously Attended Institutions</th>
<th>Maximum Transferable Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Y (only)</td>
<td>62</td>
</tr>
</tbody>
</table>
Admission to the Honors Program

The Honors Program at UM-Dearborn is designed for qualified, highly-motivated students who want an extra level of challenge and stimulus in their college experience. Honors students take a special sequence of classes that satisfy basic requirements and, at the same time, provide a well-balanced undergraduate education. The program teaches students to think critically and independently, to perceive connections between diverse areas of knowledge, and to express their thoughts clearly and effectively. Honors Program classes are small, enabling students to interact closely with the faculty and each other.

Admission to the program is competitive and is based on the student’s interests and experience as well as the high school record. Students admitted with distinction (at least a 3.50 recalculated GPA and at least a 1200 total SAT score or a 25 ACT composite score) will be contacted to schedule an interview for the Honors Program.

For more information, visit umdearborn.edu/casl/sp_honorsprog.

Personal Enrichment

Personal Enrichment (PE) is an admission status that enables students to enroll in undergraduate courses for the purpose of personal or professional development.

Eligibility

• Students must have already earned a baccalaureate degree and not be seeking an additional undergraduate degree.

Students in this category are subject to the following policies:

• A PE student may enroll for a maximum of 15 credit hours at the University. There is no limit on the number of semesters, but the total number of completed credit hours for all semesters enrolled may not exceed 15.
• A PE student may apply no more than 15 credit hours accumulated at UM-Dearborn to a degree program. Exception is possible only by written permission of the academic dean of the unit to which the student has applied.
• A PE student is limited to enrolling for nine credit hours (not to exceed three courses) in a single four-month term (four hours per half-term).
• A PE student with a grade point average (GPA) less than 2.0 should visit the Office of Student Success before registering for a subsequent term. The student will normally be put on probation. If academic performance persists below a 2.0 cumulative grade point average (GPA), the student may be required to withdraw from the University.

A Personal Enrichment student will have fees assessed and adjusted by fee regulations identical to those governing regular matriculated students. All courses taken under PE status are considered part of the undergraduate record.

Students who wish to request additional information should call the Office of Admissions and Orientation at 313-593#5100.

Prospective Degree Student

The Prospective Degree Student (PDS) program provides an opportunity for an individual whose previous high school and/or college work does not qualify for admission as a degree-seeking student to enroll in undergraduate courses.

Eligibility

• Students who are at least five years beyond high school graduation (or beyond last high school attendance for applicants with a GED)

or

• Students who have completed some college work, and are at least five years out of high school, and have not been enrolled in college for at least two years

Students in this category are subject to the following policies:

• A student may enroll for a maximum of 15 credits toward degree as a non-degree student. The student may take additive credits with the approval of his/her advisor, but these credits are not used in determining eligibility for degree status, nor will they apply toward a degree.
• The 15 credit hours, GPA requirement, and prerequisite courses (if any) must be completed within two full academic years.
• A PDS student with a grade point average (GPA) less than 2.0 should meet with the START Office. The student will normally be put on probation.
• Upon completion of no more than 15 credit hours, the student must apply for admission to a degree program.
• Students who earn a GPA less than the academic unit requirement are unable to apply for admission and do not have permission to enroll in any status.
• Students who do not enroll at UM-Dearborn for one year or more and are in good academic standing must reapply by completing a new Prospective Degree Student admission application.
• A PDS student will have fees assessed and adjusted by fee regulations identical to those governing regular matriculated students. All courses taken under PDS status are considered part of the undergraduate record.
• PDS students must take the English and Mathematics placement exams either before or during their first semester of enrollment.

Financial Aid Eligibility Limitations

Prospective Degree Students have a special status at UM-Dearborn and are eligible to be considered for financial aid for up to 12 consecutive months before admission to a regular degree program. If a student is not admitted to a regular degree program at the end of the 12 consecutive months, the student is not eligible for additional financial aid.

Students who wish to request additional information should call the Office of Admissions and Orientation at 313-593-5100.

Alumni Enrichment Program

The Alumni Enrichment Program is an opportunity for UM-Dearborn alumni to enhance their education and to provide additional exposure to a variety of subject areas on a non-credit basis. Each alumni’s selection of courses will be checked to ensure that the educational-broadening objective of this program is being faithfully pursued.

All courses must be taken on a pass/fail basis.
Eligibility
This program is available to UM-Dearborn alumni only. Upon acceptance, students are eligible to elect up to 9 hours per term of undergraduate course work in one or more fields distinctly different from the field in which they earned their bachelor's degree (major or minor).

Undergraduate and graduate alumni from UM-Dearborn may pursue undergraduate courses. They are eligible to participate in the program one full term after graduation has been confirmed. Alumni participants are not eligible if currently enrolled in a degree or certificate program.

Course enrollments will occur on a space available basis. Alumni in this program will also have to meet the regular prerequisites for any courses they elect. Internship, cooperative education, and online courses are not available to program participants.

Assessment
A discounted per credit hour charge will be levied as an "enrollment fee." This means that a portion of the tuition will be covered by an Alumni Scholarship. The Alumni Enrichment student will also be expected to pay any fees associated with registration, course elections, and technology.

To Apply
Complete an Alumni Enrichment Application and submit it to Enrollment Services. Applications are available in the Office of Admissions and Orientation or online at umdearborn.edu/otheradmission. Once approved and processed students will be allowed to register for classes. For further information, contact the Office of Admissions and Orientation at 313-593-5100.

Guest Students
A guest student is a regular degree student in good standing at another institution who is admitted to UM-Dearborn for one term only. Work completed under such an arrangement is considered to be a part of the student's program elected under the jurisdiction of the home institution.

Admission is by means of the Michigan Uniform Guest Application certified by the home institution, and a completed addendum to the application available at umdearborn.edu/guest-addendum. The Guest application deadline for any term is the first day of class of that term.

Guest students are expected to receive academic advising from their home institution, although guest students are subject to all rules governing course prerequisites.

Enrollment is limited to a maximum of four semesters. A new application is required for each semester they wish to enroll. If a guest student has previously taken classes at UM-Dearborn, the admission decision will also be based on the UM-Dearborn GPA.

If there are prerequisites for any courses elected, the student is required to submit a copy of the home college/university's transcript to verify that all requirements have been fulfilled and receive the necessary overrides prior to registration.

UM-Dearborn students wishing to elect courses at another institution of higher education should see "Coursework at Other Institutions (http://umdearborn-preview.courseleaf.com/undergraduate/academic-policies/coursework-at-other-institutions)".

Dual Enrollment Programs
High School Dual Enrollment
Dual enrollment provides an opportunity for high school students with demonstrated academic potential to enroll in selected UM-Dearborn courses while completing their high school graduation requirements.

The purpose of the program is to supplement and enrich the educational experience by allowing students to pursue course work which otherwise would not be available. Admission as a dual enrolled student is a special non-degree status. Students are expected to complete all graduation requirements mandated by his/her high school. Although students are admitted with a special status, they are granted full privileges of UM-Dearborn students, including use of the library and recreational facilities and the opportunity to purchase student tickets to cultural and athletic events at the University of Michigan. After graduation, admission to a degree program at the University will be granted provided they meet the minimum admission criteria. Dual enrollment students may enroll for a maximum of eight credit hours per semester.

Admission Criteria

<table>
<thead>
<tr>
<th>Current Class Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
</tr>
<tr>
<td>• 3.0+ posted GPA on HS Transcript</td>
</tr>
<tr>
<td>Juniors</td>
</tr>
<tr>
<td>• 3.5+ posted GPA on HS Transcript</td>
</tr>
<tr>
<td>Sophomores and Freshmen</td>
</tr>
<tr>
<td>• 3.75+ posted GPA on HS Transcript</td>
</tr>
<tr>
<td>• Personal Interview with Admissions Representative to measure maturity level and preparedness for college coursework.</td>
</tr>
<tr>
<td>• Optional: provide any additional assessment scores if available (i.e. Explore, Plan, ACT, Compass, MME, PSAT, SAT, or Accuplacer)</td>
</tr>
</tbody>
</table>

1 Upon admission, high school freshmen and sophomores must sign a contract with the Office of Student Success which will connect them with additional support services.

To Apply for Admission
Apply as early as possible. The deadline for all documents is June 15 for the fall semester and November 1 for the winter semester. No application will be processed until all of the following have been completed and received:

1. The Dual Enrollment application.
2. Course election worksheet (back of the application). Be sure to select alternatives.
3. Calculation sheet (back of the application) signed by your high school principal.
4. An official transcript (including test scores, if applicable).
Note: Students must submit a new application for each semester they wish to enroll.

Orientation and Registration
Students will be notified of their admission status by the Office of Admissions and Orientation. Admission to dual enrollment status does not guarantee the ability to enroll in the class(es) specified on the application form, but every effort will be made to accommodate the student's request. Information about orientation and registration will be mailed upon admission.

IGNITE Dual Enrollment
IGNITE, is an acronym for Inspiring Gifted and Nurturing Individuals Through Enrichment. The objective of the IGNITE program is to provide an opportunity for home schooled high school students with demonstrated academic potential to enroll in selected UM-Dearborn courses while completing their high school graduation requirements.

The purpose of the program is to supplement and enrich the educational experience by allowing students to pursue course work which otherwise would not be available. Admission as an IGNITE dual enrolled student is a special non-degree status. Students are expected to complete all graduation requirements mandated by his/her high school. Although students are admitted with a special status, they are granted full privileges of UM-Dearborn students, including use of the library and recreational facilities and the opportunity to purchase student tickets to cultural and athletic events at the University of Michigan. After graduation, admission to a degree program at the University will be granted provided they meet the minimum admission criteria. IGNITE dual enrollment students may enroll for a maximum of eight credit hours per semester.

Students are not permitted to enroll in both programs simultaneously; a student will either be an IGNITE applicant or a dual enrollment applicant. If you have questions about the IGNITE program, call the Office of Admissions and Orientation, 313-593-5100.

Admission Criteria
IGNITE applicants must be home schooled, U.S. citizens or permanent resident aliens, and meet the following criteria.

<table>
<thead>
<tr>
<th>Current Class Standing</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>• 3.0+ posted GPA on HS Transcript</td>
</tr>
<tr>
<td>Juniors</td>
<td>• 3.5+ posted GPA on HS Transcript</td>
</tr>
</tbody>
</table>
| Sophomores and Freshmen | • 3.75+ posted GPA on HS Transcript  
|                        | • Personal Interview with Admissions Representative to measure maturity level and preparedness for college coursework.  
|                        | • Optional: provide any additional assessment scores if available (i.e. Explore, Plan, ACT, Compass, MME, PSAT, SAT, or Accuplacer) |

1 Upon admission, high school freshmen and sophomores must sign a contract with the Office of Student Success which will connect them with additional support services.

Scholarships
The IGNITE Scholarship pays half tuition and fees up to a maximum of eight credit hours per term for the fall and winter semesters only. Students do not have to complete a separate scholarship application; their tuition will automatically be adjusted.

Students may take classes during the summer semester, but are responsible for full tuition and fees; no scholarships are awarded for summer semester.

To Apply for Admission
Apply as early as possible. The deadline for all documents is June 15 for the fall semester and November 1 for the winter semester. No application will be processed until all of the following have been completed and received:

1. The IGNITE application.
2. Course election worksheet (back of the application). Be sure to select alternatives.
3. An official transcript (including test scores, if applicable).

Note: Students must submit a new application for each semester they wish to enroll.

Orientation and Registration
Students will be notified of their admission status by the Office of Admissions and Orientation. Admission to IGNITE dual enrollment status does not guarantee the ability to enroll in the class(es) specified on the application form, but every effort will be made to accommodate the student's request. Information about orientation and registration will be mailed upon admission.

All dual enrollment applications can be found online at umdearborn.edu/otheradmission/.

Readmit
An undergraduate student (that is, a candidate for a bachelor's degree) who does not register for any courses at UM-Dearborn during a 12-month period must be formally readmitted in order to resume studies at UM-Dearborn. Such a readmitted student is then governed by the current Catalog.

Some academic units at UM-Dearborn may have more stringent regulations. It is the obligation of students who leave the University for an extended period of time to acquaint themselves with the specific requirements.

Since all I and X marks are permanently changed to IE and XE after four months, a readmit may not petition to make up Fs or Xs on his/her prior record.

Courses taken at other campuses will not count automatically toward graduation. Students should petition their academic unit for credit(s). Maximum transfer hours apply (see "Transfer Equivalency Worksheet" section).

Readmitting students complete a Readmission Form available to download at umdearborn.edu/ddc and submit it directly to the academic
unit in which they wish to enroll. Readmitted students are subject to the requirements in effect at the time of readmission. If students want to change their program of study, they should contact the academic unit of the program to which they would like to change.

Deferring Admission

Students who have been admitted but did not enroll may defer admission up to one year. After that, a new admissions application must be submitted.

To defer admission, students complete an Admission Information Change Form available to download at umdearborn.edu/ddc and must disclose if there has been or will be any enrollment at another school prior to the new deferred semester. Failure to disclose this information may result in the revocation of admission.

Teacher Certification

The College of Education, Health, and Human Services at UM-Dearborn can assist qualified persons who hold a bachelor's degree from an accredited institution to pursue a program of study leading to a recommendation for a Michigan Provisional Teaching Certificate-Elementary (COE) or Secondary (COS).

Michigan Tests for Teacher Certification (MTTC) are required for both admission and for certification.

Admission to these programs (COE and COS) requires a cumulative GPA of 2.75 or higher on a 4.0 scale. In addition, a GPA of 2.75 is required in the chosen teaching Major (M) and teaching minor (m) (see Major/Minors for Elementary Certification or Majors/Minors for Secondary Education). Once admitted, the 2.75 must be maintained in all areas.

Applications and additional information are available by calling 313-593-5090.

Second Degree

Applicants pursuing a second Bachelor's degree must submit the Application for Undergraduate Admission and Scholarships and meet the same admission requirements as transfer students. Each of the four academic schools and colleges of the University have their own admission criteria:

<table>
<thead>
<tr>
<th>College</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASL</td>
<td>2.50</td>
</tr>
<tr>
<td>COB</td>
<td>2.70</td>
</tr>
<tr>
<td>CECS</td>
<td>2.75 1</td>
</tr>
<tr>
<td>CEHHS</td>
<td>2.75 2</td>
</tr>
</tbody>
</table>

1 Students must also have a 2.75 recalculated math, science, and engineering GPA.
2 Several select programs within CEHHS have a 2.50 GPA requirement. Contact the Office of Admissions and Orientation for more details.

Refer to the Transfer Student Admission section for additional information.

Retired Persons Scholarship Program

The Retired Persons Scholarship Program (RPSP) offers retirees the opportunity to attend classes alongside traditionally-aged students. The integration of younger students and older students into the mainstream academic curriculum bridges the generational gap. A limited number of Retired Persons Scholarships for undergraduate and graduate study are available at UM-Dearborn.

Prospective students are required to:

- have reached their 60th birthday prior to the semester of their first registration under this program.
- have graduated from high school and have the potential to succeed at college-level studies.
- be a "retired person"—to have no current career or employment.

For more information, visit umdearborn.edu/rpsp. Applications are available at umdearborn.edu/ddc or in the Office of Admissions and Orientation:

1145 University Center
University of Michigan-Dearborn
4901 Evergreen Road
Dearborn, MI 48128
313-593-5100

International Admission

Application deadlines for students residing outside the U.S.:

- For the fall semester: July 1
- For the winter semester: November 1
- For the summer semester: March 1

Students from other countries are welcome to apply for admission to the University of Michigan-Dearborn. The following documents must be received before an admissions decision can be made:

Application for Undergraduate Admission

- You may submit your application first, and send additional materials afterwards; however a complete packet with all necessary application components will expedite the admissions decision.
- All correspondence must be in English, and must contain the full name of the applicant with the family surname underlined. Once the application has arrived, applicants will be notified of any missing items. Applications will not receive a final evaluation until all required materials have been received.
- If you are already in the U.S. studying on an F-1 or J-1 visa, please indicate F-1 or J-1 on the "Type of Visa" section on the Application for Undergraduate Admission.
- Students who plan to obtain an F-1 or J-1 visa from abroad for use in entering the U.S. should write "plan to obtain F-1 or J-1 visa" in the "Type of Visa" section on the Application for Undergraduate Admission.
- If you are currently in the U.S. as a refugee, asylee, or on a temporary visa other than the F-1 student visa (such as F-2, B-2, H-4, etc.), and you wish to change to F-1 status to begin attending UM-Dearborn, please indicate this on your Application for Undergraduate Admission.
Transcripts from previous high schools or colleges attended

Freshmen

All freshmen must submit official transcripts for all years of secondary school work completed (U.S. and abroad). If your secondary school work has been completed in a country which has national standardized examinations, you must also submit official certificates showing results of these examinations (“O” or “A” levels, Baccalaureate, Standard X and XII, etc.).

Transfer Students

Transfers must have official transcripts sent to the Office of Admissions and Orientation from the official source. Transfers must have official transcripts sent to the Office of Admissions and Orientation from all post-secondary institutions attended. Transfer students must provide proof of secondary school completion (diploma, final transcript, leaving certificate, examination certificate, etc.), but are usually not required to provide records from all years of secondary school. However, you must provide complete records if you have attended college for less than one year of full-time study.

Academic Records from outside of the U.S.

Translations are required for all documents and transcripts not originally in English. These translations are the responsibility of the student and must be complete, word-for-word, and in the same format as the original document. You must submit both the original document and the translation to the Office of Admissions and Orientation.

If you have attended high school or a college/university outside the U.S., you must also submit transcripts from all institutions you have attended outside the U.S. to Educational Credential Evaluators (ECE) for a course-by-course evaluation (ece.org). ECE requires that you submit records from your last year of secondary school along with your college or university records. The evaluated record(s), translation(s), and original transcript(s) in the native language must be sent to the Office of Admissions and Orientation from the official source.

English Language Proficiency Requirements

If you are not a native speaker of English, you must prove an adequate level of English language proficiency to enroll in college credit courses, and regardless of how long you have resided or been educated in the U.S. You must fulfill the English language proficiency requirement in one of the ways described below before regular admission will be granted.

Freshmen may prove their English Language Proficiency without additional testing by:

- completing two full years of general track English courses in a U.S. high school with grades of “C” or better and
- achieving an acceptable score on the verbal section of the SAT or ACT. There is no specific SAT/ACT verbal score required, but this score will be used in conjunction with other factors to evaluate your academic English skills.

Transfers may prove their English proficiency without additional testing by:

- presenting acceptable performance as described in the freshmen section above. You must provide records to verify acceptable courses, grades, and SAT/ACT scores, or completing two semesters of regular-track, transferable English composition courses, equivalent to UM-Dearborn’s Composition 105 and 106, with grades of “C” or better in both courses (“C-” or below is not acceptable for transfer).

If you are enrolled in the second semester of English composition when applying and earn a “C” or better in the first semester of English Composition, conditional admission may be possible.

If you have not demonstrated English language proficiency in one of the ways described above, you must take an English language proficiency test. The Office of Admissions and Orientation will accept the Test of English as a Foreign Language (TOEFL), the Michigan English Language Assessment Battery (MELAB), or the International English Language Testing System (IELTS) Examination. You must take one of these tests; it is not necessary to take all of them.

The minimum score required for admission is dependent on the test you take. Achieving the minimum score does not guarantee admission, only consideration.

Minimum Scores

<table>
<thead>
<tr>
<th>Test</th>
<th>Minimum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELAB</td>
<td>76</td>
</tr>
<tr>
<td>TOEFL: Paper-based</td>
<td>550</td>
</tr>
<tr>
<td>TOEFL: Computer-based</td>
<td>213</td>
</tr>
<tr>
<td>3 TOEFL: Internet-based</td>
<td>80</td>
</tr>
<tr>
<td>IELTS</td>
<td>6.5</td>
</tr>
</tbody>
</table>

The TOEFL and IELTS are offered throughout the world. The MELAB is offered in the United States and Canada. You should take a test well in advance of your intended starting term. TOEFL and MELAB scores arrive at UM-Dearborn 6-8 weeks after the test date. IELTS mails results 13 days after the test date.

You may take the MELAB, TOEFL, or IELTS test more than once, and all scores will be considered. Test scores more than two years old will not be accepted for consideration. For testing information and registration materials, please contact:

MELAB
CaMLA
Argus 1 Building, 535 West William St, Ste 310
Ann Arbor, MI 48109-4978, U.S.A.
Telephone: 734-615-9629
cambridgemichigan.org/melab (http://www.Cambridgemichigan.org/melab)
info@cambridgemichigan.org (http://www.Cambridgemichigan.org)

TOEFL
P.O. Box 6151
Princeton, NJ 08541, U.S.A.
Telephone: 609-771-7600
toefl@ets.org (http://www.toeflgoanywhere.org)
toefl@ets.org (http://www.toeflgoanywhere.org)

IELTS
100 East Corson Street, Suite 200
Pasadena, CA 91103, U.S.A.
Telephone: 626-564-2954
ielts.org (http://www.ielts.org)
ielts@ieltsintl.org (http://www.ielts.org)
UM-Dearborn offers English as a second language courses. For information, please call the English Language Proficiency Program Office at 313-583-6661.

Standardized test requirement

All freshmen are required to take a U.S. standardized college entrance examination, regardless of your citizenship/visa status or whether you have attended secondary school in the U.S. or abroad. Transfer students are not required to take this exam if they have earned at least 24 transferable credits. If for any reason, students are unable to provide a standardized exam result, the student should contact the Office of Admissions and Orientation immediately.

- The Office of Admissions and Orientation will accept either the SAT (Scholastic Aptitude Test) or the ACT (American College Test). The student should make certain that the test results are forwarded to the UM-Dearborn Office of Admissions and Orientation (SAT code #1861; ACT code #2074). You must take one of these tests (it is not necessary to take both). These tests are available throughout the world, and should be taken well in advance of the intended starting term. SAT and ACT scores take 6-8 weeks after the test date to arrive at UM-Dearborn. You may take the test(s) more than once, and UM-Dearborn will consider your highest composite score.
- Your score will be used as one factor in the admissions process. If your secondary education has been completed partially or entirely abroad, and if English is not your native language, your individual circumstances will be considered when evaluating your test scores.
- For students with international backgrounds, the score required for admission in each case will depend on various other factors, such as high school courses and grades, and English proficiency test scores (if required).
- For information and registration materials for the SAT or ACT, please contact your high school counselor if you are in the U.S., or contact the testing agencies directly if you are currently living abroad:
  
  SAT
  College Board
  P.O. Box 6200
  Princeton, NJ 08451, U.S.A
  Phone: 866-756-7346
  sat.org (http://www.sat.org)

  ACT
  P.O. Box 414
  Iowa City, IA 52443, U.S.A.
  Phone: 319-337-1270
  act.org (http://www.act.org)

Academic Requirements for International Admission

This section discusses grade-point average (GPA) and course/curriculum requirements.

Freshmen

Freshmen who have attended secondary school abroad are expected to meet the same general admissions requirements as U.S. students.

1. You must have earned a U.S. high school diploma or the equivalent secondary school completion credential in your country, by the time you would enroll at UM-Dearborn. Freshmen usually apply during their last year of secondary school. Any offer of admission is conditional upon successful completion of the secondary school program before enrollment at UM-Dearborn.

2. You must have pursued a general academic (non-vocational) program of study. Solid preparation in the traditional academic college-preparatory subjects is required (English, mathematics, science, social studies).

3. You must have maintained above-average grades throughout your secondary school studies. Admission is competitive, and to be a strong candidate for admission, grades received should be equivalent to an overall GPA of 3.0 on a 4.0 U.S. scale. If you complete your secondary schooling abroad, please contact the Office of Admissions and Orientation for information on the credential and level of performance which would be acceptable for admission.

Transfer Students

The Office of Admissions and Orientation will evaluate transcripts from all institutions attended as well as ECE or WES evaluations for foreign schools.

General academic requirements for each unit are listed below. You should contact the Office of Admissions and Orientation as early as possible in your academic career to be certain that you are completing courses that will not only transfer, but also count toward specific admission and/or graduation requirements at UM-Dearborn. All GPA requirements are given using the 4.0 U.S. scale.

All transfer applications are reviewed on an individual basis, and if you do not meet the stated requirements for your desired unit, it is suggested that you discuss your situation with an admissions counselor. Call 313-593-5100 to schedule an appointment.

- College of Arts, Sciences, and Letters
  Required GPA: 2.50
- College of Business
  Required GPA: 2.70
- College of Engineering and Computer Science
  Required GPA: 2.75
  Other requirements: Students must also have a 2.75 recalculated math, science, and engineering GPA.
- College of Education, Health, and Human Services
  Required GPA: 2.75*

*Several select programs within CEHHS have a 2.50 GPA requirement. Contact the Office of Admissions and Orientation for more details.

How to obtain I-20 or DS-2019

Please reference the Office of International Affairs website at umdearborn.edu/io_international-undergrad-adm/. All documents received by the Office of Admissions and Orientation will be shared with the Office of International Affairs for the purpose of creating the I-20 or DS-2019.

Effective July 1, 2017, the University will use an express delivery service, via University Express Mail Services (UEMS) eShipGlobal (http://study.eshipglobal.com), to send Form I-20 or DS-2019 to admitted international students and any students who would like to request Form I-20 or DS-2019. This safe, quick, and dependable delivery service allows you to pay for, track, and receive your documents.

You will need:

- UMID Student ID (8 digit number), if available
• Your mailing address
  • You may request shipment either to your foreign address, or to a U.S. address.
  • If your requested documents will be sent to a U.S. contact address, please include the name of the person who lives at that address
• Your E-mail address
• Your phone number
• Your credit card information (Visa, Mastercard or Discover cards only). The cost of this service will vary by country, ranging between $45 and $95 USD.

The Office of International Affairs (OIA) will receive notification that you have paid for your documents to be sent by express mail and this will trigger next steps.

If you are near Dearborn, arrangements can be made to pick up your immigration documents directly from OIA (https://umdearborn.edu/offices/international-affairs).

Using Express Mail (eShipGlobal)
The UEMS website works best with Internet Explorer and Mozilla Firefox browsers. Do not go through other shipping sites like DHL, FedEx or UPS directly. All communication will go through the UEMS eShipGlobal service.

If you experience any difficulty in registering and processing the shipment, please use the eShipGlobal/UEMS “Help” link for step by step instructions. If you have additional questions about how to use this service, please review their Frequently Asked Questions (https://study.eshipglobal.com/help/default.asp?page=8) or e-mail student.support@eshipglobal.com.

Requesting Documents
Register and activate your account at University Express Mail Services (https://study.eshipglobal.com). Registration and activation of your account is free.

Download printable instructions (https://umich.box.com/s/z09lim2y4t8gw266shihlg3bwkp84nf8).

1. Once logged in, click the “Receive documents from your University” option.
2. Type “University of Michigan-Dearborn” in the search box, or select it from the drop down list.
3. Once “University of Michigan-Dearborn” has been selected, click “Continue.”
4. Select the specific university department “Office of International Affairs” and then “Continue.”
5. Complete the shipping form, using your student ID, and select “Ship/Quote.”

Note: PO Box addresses are generally not preferred by express carriers. If entering a PO Box address, be sure to provide the complete physical address where the PO Box is located in order to avoid delays or failed shipment.

1. On the confirmation page, check your shipment details.
2. On the same page, complete the credit card information form.
3. Select “Confirm” to advance to the shipment summary page.

4. UM-Dearborn will automatically be notified by University Express Mail Services (eShipGlobal) that you have requested your documents via express mail. You can track the shipment using the tracking number provided.
5. Receive your documents in 3-5 business days from the date of mailing.
6. Students will receive:
7. A notification from the OIA stating the student’s I-20 or DS-2019 has been processed.
8. Email confirmation from eShipGlobal that their packet has left the university and is on the way.

Note: Any delays or non-receipt of packets should be directed to student.support@eshipglobal.com. The OIA does not receive any shipping information once the packet is picked-up from the office.

Admissions Committees
The Admissions Review Committee meets regularly to review borderline admission cases and other unique admission circumstances.

The Conduct Review Committee is comprised of individuals from offices across campus, and reviews applicants with academic or criminal conduct history.

Orientation
The Office of Admissions and Orientation conducts orientation programs for newly admitted freshmen, transfer students, and parents of incoming students. These programs focus on academic expectations, requirements at UM-Dearborn, and various aspects of campus life. The programs also make students aware of existing services available to them: counseling; tutoring; academic advising; life/work planning; and social and cultural activities. Registrations for a student’s first semester of classes takes place at Orientation. The orientation program for parents of new students acquaints them with the organizational and programmatic structure of the University. Once admitted to the University, each student will receive information about Orientation. It is expected that all new students, freshmen and transfers, will attend Orientation. Questions may be directed to the Office of Admissions and Orientation by calling 313-593-5100.

Placement Exams
Newly admitted students will take one or more placement exams. Placement exams are used to assess the level of class into which a student should enroll. Placement exams should be taken well in advance of orientation or meeting with academic advisor. Placement exams in English, Mathematics, and Foreign Language are offered. Placement exams are not used as a basis for awarding credit.

Financial Aid & Scholarships
Office of Financial Aid and Scholarships
4901 Evergreen Road
1183 University Center
Dearborn, MI 48128-2406
313-593-5300
313-593-5313 [FAX]
umd-ask-ofa@umich.edu
umdearborn.edu/financialaid
Federal Title IV School Code: 002326
It is the goal of the University of Michigan-Dearborn that no student should be denied an education because of limited financial resources. To meet this goal, the university maintains programs of grants, scholarships, loans, and part-time employment for eligible students who are accepted and enrolled in the university as a degree-seeking student in good standing.

Available Financial Assistance

There are three types of aid available through a single application (the Free Application for Federal Student Aid or FAFSA (https://fafsa.gov)): grants, loans, and employment. Most assistance is offered as a package of two or more kinds of aid. Most financial aid sources require a minimum of at least half-time enrollment (6 or more credit hours per semester) in coursework that counts toward degree requirements.

Undergraduates (pursuing their first bachelor’s degree) are considered for grants, loans, and work-study employment, according to their eligibility and preference. Students pursuing a second bachelor’s degree are limited to loans and work-study employment.

Admission into an eligible program of study (i.e., a degree-granting program) is primary criterion to receive financial aid funding. All Personal Enrichment, English Proficiency, and Non-Candidate for Degree status students are ineligible for financial aid. Most Guest, Prospective Degree status, and Alumni Enrichment students are ineligible for financial aid – however, there are limited exceptions which may be applicable to specific situations. Students admitted via Guest, Prospective Degree, or Teaching Certificate status should make an appointment with a Financial Aid Officer to discuss their specific admission status and financing options.

Determining Need

How eligibility for need-based aid is determined

Financial aid programs were created with the assumption that the primary responsibility for paying for college rests with students and their family. Need-based financial aid is available to families demonstrating a need for additional resources. The formula used to determine whether you are eligible for need-based aid is:

\[
\text{Cost of Attendance Budget (COA)} - \text{Expected Family Contribution (EFC)} = \text{Financial Aid Eligibility (Need)}
\]

**Cost of Attendance (COA):** is the estimated cost of attending UM-Dearborn, including estimated tuition and fees, books and supplies, room and board, transportation plus a modest allowance for personal/miscellaneous expenses. The budget allows the same room and board allowance whether you live on or off campus, unless you live with your parents and then your allowance is lower.

**Expected Family Contribution (EFC):** is derived from a formula applied uniformly to all aid applicants and considers the financial information provided on the Free Application for Federal Student Aid (FAFSA). The FAFSA determines eligibility for federal, state, and UM-Dearborn gift aid.

The EFC is made up of two parts:

1. The Parent Contribution – This is what your parents are estimated to be able to pay toward annual college costs, based on their income and assets (cash, checking, savings, and money market accounts; investments and real estate holdings; and business equity). Allowance for living expenses (based on family size), taxes paid, number of siblings in college, and retirement asset protection are built into the formula.

2. The Student Contribution – This is what you are estimated to be able to pay based on your income, percentage of savings, and other assets.

Your EFC is determined early in the process of assessing your financial need and, unless your financial circumstances change significantly, your EFC remains constant. Some financial aid programs can assist students and parents in replacing the EFC.

**Scholarships and Other Financial Resources:** are funds you may receive from sources outside your family, including private scholarships, merit scholarships, UM-Dearborn school or college scholarships, ROTC scholarships, benefits you or your parent have earned through military service or other employee benefits, awards and scholarships from your state and prepaid tuition plans.

**How need-based aid is awarded:**

We determine your eligibility for need-based aid by taking your Cost of Attendance less your Expected Family Contribution and other financial resources. We first award federal, state (if you are eligible), and University grants and scholarships, such as Federal Pell Grant, Michigan Competitive Scholarships, and Chancellor’s Scholarships. We then determine University gift aid eligibility based on total gift aid, EFC and applicants who apply by the established deadline dates. Applicants with financial need beyond grants and scholarships are then awarded Federal Direct Loans and the federal Work-Study program, which are awarded to students with need.

We attempt to distribute grant, and Work-Study funds equitably among the population of all eligible applicants who apply by established deadline dates. Awards are determined by a combination of demonstrated financial need, federal award maximums and available funding, among other factors.

Because Federal Supplemental Educational Opportunity Grant (FSEOG) funds are limited, they are awarded only to applicants with the most need.

**A note about scholarships and other resources:**

Students may seek private scholarships and get help from UM-Dearborn schools and colleges to meet their college costs. They may also use resources, such as ROTC scholarships, and veterans’ benefits. According to federal regulations and/or university policies, these are considered as financial resources when determining eligibility for need-based aid. However, they will improve your overall aid package. In general, if you receive outside aid:

- It will first be applied against costs not accounted for in your financial aid package (i.e. the gap between the Cost of Attendance and your EFC plus the aid offered). Outside aid will not reduce your EFC.
- Next, it will reduce your loan or Work-Study award, reducing funds you must borrow or earn by working.
- Your grant aid will be reduced if all loan and Work-Study awards are replaced by scholarships or other resources.

**Some important exceptions to this rule:**

- Some Office of Financial Aid scholarships are awarded based on student need. This may reduce your UM Grant, but your total aid should...
remain the same or be higher. Your total aid should not be reduced. If you are awarded one of these, you will receive a letter.

- If the student owns a 529 plan, such as a Michigan Education Trust contract, receive a post-9/11 VA benefit, or if you receive a State-funded scholarship such as the Michigan Competitive Scholarship, Detroit Compact Scholarship, Wade McCree Scholarship, Kalamazoo Promise, or Detroit Promise, it will be applied against your need-based grants before reducing your loan or Work-Study.

- Receiving a HAIL Scholarship, Wade McCree, Detroit Compact, or Detroit Promise scholarship may reduce your eligibility for university-funded scholarships and for the Michigan Competitive Scholarship. Students receiving a full tuition Chancellor’s or Victors Scholarship would not be eligible for the Michigan Competitive Scholarship.

Please note: Some scholarships require full-time enrollment before disbursement.

**Cost of Attendance**

umdearborn.edu/students/financial-aid/what-um-dearborn-costs

Each year, the Office of Financial Aid & Scholarships (OFAS) provides an estimated cost of attending UM-Dearborn. The estimated cost includes tuition and fees as charged on your student account (estimated until Census Date), housing allowance (with or away from parents/family) and other costs which can include transportation, books, supplies, and personal expenses. Your actual expenses may vary; periodic student surveys determine some of these personal costs and estimate a typical financial aid budget.

Tuition and fees are subject to change without notice by action of the Board of Regents. For current tuition and fees, individuals should consult umdearborn.edu/students/registration-records/tuition-fees.

**How to Apply for Financial Aid**

Most assistance is committed at a certain time of the year, so be mindful of application dates. Dates assume entrance for the fall semester.

**Freshmen and Transfer Students**

1. After October 1, preceding Fall enrollment, complete the Free Application for Federal Student Aid (FAFSA). Students must apply online at fafsa.gov (http://www.fafsa.gov). Include student and parent (if applicable) FSA IDs. Release the FAFSA information to the University of Michigan-Dearborn by entering our Federal Title IV School Code 002326. Students and parents should use their Federal Income Tax Returns (Form 1040, 1040A, or 1040EZ) to complete the FAFSA. FAFSA results received in the Office of Financial Aid & Scholarships (OFAS) by the recommended priority deadline will receive first priority consideration for funds.

2. Upon review of your FAFSA, the Federal Processor will provide you with a Student Aid Report (SAR). The Federal Processor will forward an electronic SAR to the email address you provided on the FAFSA. The OFAS will receive your information electronically (assuming you have released the information to UM-Dearborn as described in #1 above).

**Continuing Students**

Students currently enrolled must apply every year at fafsa.gov (https://www.fafsa.gov) after October 1 preceding fall enrollment. Applications, SARs, and/or ISIRs (resulting from the FAFSA) must be received in the Office of Financial Aid & Scholarships by the recommended priority deadline to receive priority consideration for funds.

**Summer**

Summer is a separate processing period. Applications for Summer aid are available in late March/early April. Funding for the Summer term(s) is dependent upon funding levels after the two regular terms.

**Reminders**

1. Financial aid applications are processed only after a student has been admitted, but students need not wait until they are admitted to apply for financial aid.

2. Applications submitted after the stated dates will be considered, subject to the availability of funds, but notification may not come until after the term has begun.

3. Students must re-apply for financial aid each year.

4. All correspondence and documents must include the student’s legal name and UMID number.

**Award Notification**

**New Students**

Incoming students are notified in writing via U.S. mail of their initial financial aid offer. Thereafter, communication is via email and UM-Dearborn Connect (see below).

**Current/Returning Students**

Students are encouraged to regularly check their UM-Dearborn Email account and access their UM-Dearborn Connect account for award notification and other communication from the Office of Financial Aid & Scholarships. Email communication sent to student’s UM-Dearborn Email address directs students to recent notices or activity on UM-Dearborn Connect.

**Additive Credit**

Additive credits courses do not count toward any degree requirements. For financial aid purposes, only additive credit courses that are academic and developmental/remedial in nature will be considered (COMP 099, MATH 080 & 090, CHEM 090 & 091). Additive credits include most co-op/ internship courses, which will not count towards enrollment for financial aid eligibility.

**Award Procedures**

All financial aid awards are made in accordance with two criteria: demonstrated financial need and the student’s ability to maintain satisfactory academic progress. Completed files are processed on a first-come, first-served basis. A financial aid file is complete only after the following documents or information have been received:

- A completed FAFSA on file with the U.S. Department of Education. The processed FAFSA must be valid and have the University of Michigan-Dearborn school code (002326) listed so that OFAS can obtain the results electronically.

- The submission of all other information requested by the Office of Financial Aid & Scholarships (required prior to disbursement of federal aid), including verification documents if necessary.

Once a student’s financial aid file has been reviewed and deemed complete by a financial aid counselor, a financial aid package will be processed and an award notification will be mailed or emailed to the
Types of Financial Aid

There are three basic categories of financial aid: gift aid (scholarships and grants), loans, and part-time employment. Most assistance is offered as a package of two or more kinds of aid. Undergraduates (in pursuit of the first bachelor's degree) who apply to the OFAS are considered for all three types of assistance. Undergraduates in pursuit of a second bachelor's degree are considered only for loans and work assistance.

Gift Aid

Scholarships and grants do not require repayment or work. Gift aid takes the following forms:

Freshman & Transfer Scholarships

The University offers a variety of scholarship resources for freshman and incoming students. These scholarships have specific selection criteria. Some of the funds require prior commitment and participation; most do not. For detailed information regarding criteria for these scholarships, please refer to the OFAS website (umdearborn.edu/students/financial-aid/types-aid/scholarships), or contact the Office of Admissions and Orientation at 313-593-5100.

Most scholarships have terms and conditions. These can be found by following the steps to accept your scholarship online at umdearborn.edu/students/financial-aid/accepting-receiving-aid/accepting-scholarships.

Grants

Eligibility for the following Federal, State and University grant funds are determined according to demonstration of need (based on the outcome of the FAFSA), and availability of funds. The grants are considered for undergraduate students pursuing a first bachelor's degree. Unless otherwise stated, at minimum, eligibility requires adherence to Federal fund criteria, maintenance of the University's Satisfactory Academic Progress guidelines, and enrollment of at least half-time (6 or more credit hours).

Federal Pell Grants

Pell Grant is a federal program with award currently ranging from approximately $606 to $5,920. An Expected Family Contribution (EFC) of 0 results in an award of $5,920 based on full-time enrollment for the academic year. The Federal Pell Grant Program is considered the foundation grant to which all other sources are added to create a financial aid package. Pell Grant is one of the few programs that permit some students to receive a prorated portion of the award at a less-than-half-time enrollment status.

The Federal Pell Grant Program has lifetime eligibility limitations for all Pell Grant recipients. Pell Grant recipients are eligible to receive a maximum of 12 full-time semesters of this grant. Once students have used 12 full-time semesters, they are no longer eligible for any additional Federal Pell Grant. There is no appeal for this restriction.

Students are able to track their eligibility used on the National Student Loan Data System (http://www.nslds.ed.gov/nslds_SA) (NSLDS). Access is gained using your Federal Student Aid ID (FSA ID).

The limitations of financial aid eligibility impact financial aid and scholarship programs. It is important to work closely with your academic advisor to stay on track to meet degree requirements to make the best use of financial aid funds.

Federal Supplemental Educational Opportunity Grants (FSEOG)

FSEOG is a federal campus-based program used to supplement the Pell Grant of the neediest Pell Grant recipients. At UM-Dearborn, FSEOG is reserved for students with a 0 Expected Family Contribution (EFC).

TEACH Grant

( Teacher Education Assistance for College and Higher Education )

Funded by the federal government, the TEACH Grant provides up to $3,724 per year for students whose intention is to teach in a "high need field" (subject area), in an elementary or secondary school serving students from low-income families. As a recipient, students agree (in advance of receipt) to teach a "high need field," full-time, for a minimum of four years within the eight years following program completion (or progress interruption from the program for which the grant was awarded). The FAFSA is required to be considered for a TEACH Grant. However, recipients do not have to demonstrate “need.”

The TEACH Grant will remain a grant if recipients meet the specific criteria. If recipients do not meet the criteria, the TEACH Grant converts to an unsubsidized loan with interest calculated back to the initial disbursement date(s). For this reason, UM-Dearborn has defined our eligibility criteria as cautiously as possible.

The population UM-Dearborn currently considers for the TEACH Grant are Seniors (at the undergraduate level) and graduate level students, with a high Cumulative Grade Point Average (CGPA), admitted into a degree-granting program of the College of Education, Health, and Human Services, and pursuing majors that align with the "high need fields.”

The minimum CGPA requirement for the TEACH Grant is 3.25 (on a 4.0 scale). The undergraduate degree programs currently considered are: Bachelor of Arts and Bachelor of Science. Eligible majors at UM-Dearborn are: Education, General Science, Mathematics, Mathematics Studies,
Reading Science Education, Science Studies, Special Education, and Teaching.

**Michigan Competitive Scholarship (MCS)**
Funded by the State of Michigan, the Michigan Competitive Scholarships are available to many Michigan high school graduates from the Office of Student Scholarships and Grants, Michigan Department of Treasury. Scholarships are awarded to qualifying undergraduates attending public colleges and universities in Michigan. To qualify for the scholarship, students must demonstrate aptitude based on their performance on the ACT or SAT, as well as financial need as determined by uniformly applied methodology via information from the FAFSA. Recipients must also meet Michigan residency requirements.

**Children of Veterans’ Tuition Grant Program**
The Children of Veterans’ Tuition Grant Program offers Tuition Grant assistance to the children of Michigan veterans who were killed while in service, died as a result of service-related disabilities, or are considered 100% disabled because of service-connected disabilities. The child must be a Michigan resident between the ages of 16 and 25. Upon admission to a Michigan institution of higher learning, eligible undergraduates may qualify for a Tuition Grant of up to $2800 each academic year for full-time enrollment (amounts are prorated for less than full-time enrollment). Students must maintain a 2.25 or higher cumulative grade point average. Inquiries may be directed to the State of Michigan’s Office of Student Scholarships and Grants at 888-447-2687.

**University of Michigan-Dearborn Grant**
Funded by the University of Michigan-Dearborn, UM-Dearborn Grants are awarded to help high need students defray tuition costs. The Expected Family Contribution (EFC) is used to determine eligibility for these grants. Given eligibility and funding, students who apply by the priority deadline are automatically considered for the appropriate type of grant.

**Loans**
Eligibility for the following Federal loan programs are determined according to the FAFSA and also individual, annual, and aggregate borrowing parameters. Eligibility requires adherence to Federal fund criteria, maintenance of the University’s Satisfactory Academic Progress guidelines, and minimum enrollment of at least half-time (6 or more credit hours). Requirements are subject to change over time. Additional documents may be required (e.g., Promissory Notes and Entrance Counseling) prior to disbursement of funds.

**William D. Ford Federal Direct Loan Program**
Federal Direct Loans are available through the William D. Ford Federal Direct Loan Program. Under the Federal Direct Loan Program, funds are lent to students or parent borrowers directly by the U.S. government. There are several types of Direct Loans: the Federal Direct Subsidized Loan (Subsidized FDSL), Federal Direct Unsubsidized Loan (Unsubsidized FDSL), Federal Direct Parent Loan for Undergraduate Students (FDPLUS), and the Federal Direct Consolidation Loan program.

Subsidized vs. Unsubsidized Federal Direct Loan

The Subsidized Federal Direct Loan is a need-based loan, while the Unsubsidized Federal Direct Loan is not. Students borrowing a Subsidized Loan are not assessed interest while they are enrolled at least half-time. Those borrowing an Unsubsidized Loan are assessed interest while enrolled in school, but payment of the interest is deferred until loan repayment begins. A student may pay interest while enrolled, which will result in lower loan payments over the life of the loan and a lower long-term cost.

Because Federal Direct Loan awards have origination fees, the Direct Loan amounts applied to your University student account will be lower than those listed on your Award Notice.

**Direct Subsidized Loan Time Limitation**
New Federal Direct Subsidized Loan borrowers are limited in the amount of time they qualify for an interest subsidy. Students who have exceeded 150 percent of the published length of their educational program will be:

- Ineligible for additional Federal Direct Subsidized Loans (though you may borrow a Federal Direct Unsubsidized Loan) and
- Responsible for interest on all loans accruing after exceeding the 150 percent limit.

New borrowers are defined as students with no outstanding federal loan principal balance when they take out a new loan after July 1, 2013. Transferring between programs does not reset loan eligibility. Interest not paid will be capitalized, effectively increasing your loan principal upon repayment.

**Undergraduate students approaching graduation:** If you are enrolled less than full-time during your final term, you may not be eligible for the full, annual maximum federal loan limit. Consult with an aid officer to discuss your situation.

### Annual and Lifetime Federal Direct Student Loan Limits

<table>
<thead>
<tr>
<th>Class Level</th>
<th>Dependent Undergraduate</th>
<th>Independent Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen (0–24 credits)</td>
<td>$5,500 (only subsidized loans)</td>
<td>$9,500 (only subsidized loans)</td>
<td></td>
</tr>
<tr>
<td>Sophomores (25–54 credits)</td>
<td>$6,500 (only subsidized loans)</td>
<td>$10,500 (only subsidized loans)</td>
<td></td>
</tr>
<tr>
<td>Juniors and Seniors (55 credits and above)</td>
<td>$7,500 (only subsidized loans)</td>
<td>$12,500 (only subsidized loans)</td>
<td></td>
</tr>
<tr>
<td>Graduate (Masters or Doctoral)</td>
<td>Up to $20,500 in unsubsidized loan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Total Debt From Direct Student Loans Upon Graduation</td>
<td>$31,000 (only in unsubsidized loans)</td>
<td>$57,500 (only in unsubsidized loans)</td>
<td>$138,500 (only in unsubsidized loans)</td>
</tr>
</tbody>
</table>

Federal Direct Parent Loans for Undergraduate Students

Direct PLUS Loans are part of the federal Direct Loan Program, which makes loans directly from the U.S. Dept. of Education.
The parent(s) of a dependent undergraduate must apply for PLUS loans separately if they need additional funds to cover costs. Eligibility is not based on need and borrowers may obtain up to the amount of Cost of Attendance minus any other financial assistance received.

The Direct PLUS Loan may be of interest to a parent whose student:

• is not eligible for other aid
• has unusual costs above standard student expense budgets
• has remaining financial need after other forms of aid are awarded or
• wishes to borrow all or part of their Expected Family Contribution.

There are certain requirements to qualify for the PLUS loan and the federal processor will access your credit report as part of the application process. Because credit checks are valid for a limited time, applications for the Fall and/or Winter terms should be completed beginning in early June. Applicants must complete the FAFSA before eligibility for the PLUS Loan can be determined. You must reapply each year.

Federal Direct Consolidation Loan
Federal Direct Consolidation Loans are designed to help student and parent borrowers simplify loan repayment. This loan allows the borrower to consolidate several types of federal educational loans with various repayment schedules into one loan, requiring only one payment per month. Interest rates, however, may differ depending on the loan category as well as repayment and deferment options for the borrower.

Borrowers in default on a previous federal education loan may be able to obtain a Direct Consolidation Loan as a method of resuming the educational process and regaining eligibility for financial aid funds. (Those in default are ineligible for any and all financial aid while the default status is unresolved.)

Those interested may contact their Direct Loan Servicer or access their web site studentloans.gov (http://studentloans.gov) for additional information.

Student Employment
Federal Work-Study Program—Federal Work-Study is a Title IV program offering part-time work for students who demonstrate financial need. Students work up to 25 hours per week during the regular semester, depending upon the student’s financial need, availability of federal funds, and the student’s class schedule. Seven percent of the school’s annual Federal Work-Study allocation will be used to fund community service jobs.

Work-Study awards are earned by working for Work-Study employers and earning a paycheck, typically paid bi-weekly through the employer’s payroll system. They do not appear as aid on your student account. Employers pay a percentage of students’ wages and federal funds pay the remaining wages.

University openings are posted on careers.umich.edu (http://careers.umich.edu). You can also contact the Office of Career Services (https://umdearborn.edu/students/office-career-services) for assistance with Off-Campus openings. You must show the employer a copy of your Award Notice and proof that your enrollment is at least half-time (6 or more credit hours) and inform your employer if your Work-Study eligibility changes.

On-Campus Employment
On-campus employment is funded by UM-Dearborn, when not funded by Federal funds. There are many part-time and temporary jobs available in the academic departments and in the support offices. Eligibility for Federal financial aid funds is not a requirement for University employment. Students may contact the Office of Career Services (https://umdearborn.edu/students/office-career-services) to inquire about job availability. The departments pay 100 percent of these wages. To locate an on-campus job, visit careers.umich.edu (http://careers.umich.edu).

Other Sources of Financial Aid
Other sources of financial assistance are available through government agencies such as Vocational Rehabilitation, Veterans Administration, and Social Security. Students needing information on these programs should contact the nearest appropriate agency.

Assistance for educational expenses may also come in the form of tax allowances. The Internal Revenue Service publishes Publication 970. Publication 970 provides information on educational benefits allowed within the tax code. Publication 970 may be obtained from the Internal Revenue Service or viewed online at irs.gov/publications/p970 (http://www.irs.gov/publications/p970).

Satisfactory Academic Progress
Satisfactory Academic Progress policy
Satisfactory Academic Progress (SAP) describes a student’s successful completion of coursework toward a degree. To maintain SAP, a student must:

• SAP is monitored at the end of each semester (Fall, Winter, Summer).
• Undergraduates must successfully complete a minimum percent of attempted courses.
• Undergraduates must achieve a required 2.0 cumulative grade point average or higher if required by your academic unit.
• Students must complete academic program within 150% of published length of program.
• Graduate students must complete 67% of attempted courses.
• Graduate students must maintain 3.0 CGPA or higher if required by your academic unit. For transfer students: The number of transfer hours accepted at the point of admission are used to calculate a student’s remaining eligibility under the 150% standard and will be included in the quantitative calculation which includes number of credits attempted and completed.
• For second undergraduate degree students: These students are eligible to receive only loan funds. Second-degree students are given 150% of stated credit hours required for the second degree program.

Satisfactory Academic Progress Standards
Students who receive financial aid must demonstrate SAP as determined by the University of Michigan-Dearborn in accordance with federal regulations. Financial aid recipients are required to be in good academic standing and to maintain SAP toward their degree requirements for each semester in which they are enrolled. SAP is required to maintain eligibility for financial aid. The requirements for financial aid may be different than those required by one’s academic unit. The standards of Satisfactory Academic Progress measure a student’s academic progress using both qualitative and quantitative measurements. These measurements include a Cumulative Grade Point Average (CGPA) requirement, a Cumulative
Completion Rate requirement, and a Maximum Timeframe requirement. In addition, certain types of courses are limited or excluded from eligibility. The standards apply to all federal financial aid programs and programs funded and administered by the University of Michigan-Dearborn Office of Financial Aid and Scholarships and include degree, certificate, and consortium guest students who receive financial aid. SAP is evaluated at the end of each term (Fall, Winter, and Summer). Federal regulations require the University of Michigan-Dearborn to evaluate all students for SAP regardless of whether or not they receive financial aid. SAP is evaluated based on the student’s cumulative academic record, from the date of entry to the university.

Cumulative Grade Point Average (CGPA) The qualitative measurement assesses the student’s Cumulative Grade Point Average (CGPA).

- Undergraduate Students: The minimum CGPA requirement is a 2.00 or higher if required by your academic unit.
- Graduate/Professional Students: The minimum CGPA requirement is a 3.00 or higher if required by your academic unit.

Completion Rate The quantitative measure assesses the pace at which a student progresses towards a degree. To ensure progress, students are required to complete a minimum percentage of all attempted courses (please see below for details). Attempted courses are those for which a student is enrolled at the conclusion of the Add/Drop period for a semester (those that appear on the academic transcript).

Students who fulfill this minimum rate of course completion and follow departmental recommendations on course selection should complete their degree within the Maximum Timeframe.

<table>
<thead>
<tr>
<th>Attempted Credit Hours/Status</th>
<th>Required Completion %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 30 Hours</td>
<td>55%</td>
</tr>
<tr>
<td>31 – 60</td>
<td>62%</td>
</tr>
<tr>
<td>61 and above</td>
<td>67%</td>
</tr>
</tbody>
</table>

Maximum Timeframe (MTF) Federal regulations require that a student must complete his or her educational program at a Maximum Timeframe (MTF) no longer than 150% of the published length of the educational program measured in academic years, terms or credit hours attempted.

Up to 30 required remedial credits will be added onto the program length when determining compliance with the 150% of program length completion requirement.

Transfer Credits Courses that are transferred from another institution and accepted toward an academic degree program at the University (at the time of SAP Review) count as attempted and completed hours for Completion Rate and Maximum Timeframe (MTF). The CGPA is determined only with courses taken in residence at the University.

Grades, enrollment/withdrawal and repeated classes

GRADES: Only courses for which a student receives a grade of A, B, C, D, I, or P are acceptable. A grade of E, UE, F, ED, W, NR, or X is not acceptable. Students who fail to complete at least 67% of attempted credit hours because of incomplete grades or who withdraw from all classes will be placed on probation for one semester. If they still fail to meet the 67% completion rate, their financial aid will be terminated. A student may receive financial assistance for a course that was repeated and for which a non-passing grade was received.

REPEATED CLASSES: Students who receive a passing grade may repeat that class once and have that enrollment considered for financial aid.

(REpeating classes that do not result in additional hours earned will not improve completion rate.)

TERMS WITH FAILING GRADES: Office of Financial Aid and Scholarships will be verifying attendance during a term in which all grades received are unacceptable (as defined above). Failure to verify attendance in each class will result in cancellation of all aid for the term.

REGAINING AID ELIGIBILITY: A student may regain eligibility by notifying the UM-Dearborn Office of Financial Aid and Scholarships when these three things have been accomplished:

1. Complete a minimum of 12 credit hours for undergraduates or 8 credits for graduate students at UM-Dearborn (or as specified in the Academic Plan) without the benefit of financial aid. Students may take the credits at another institution of higher education if approved by their academic advisor; and,
2. Achieve a minimum GPA of 2.0 for undergraduates or 3.0 for graduate students; and,
3. Complete 100% of attempted credit hours.

NOTE: For more information regarding Satisfactory Academic Progress and how it effects your financial aid see the complete policy online at umdearborn.edu/students/financial-aid/consumer-information/standards-academic-progress.

Return of Title IV Funds

Students sometimes find it necessary to withdraw from all classes during a semester. Depending on when this occurs, students may receive a refund of all or part of tuition and fees. If the student is a financial aid recipient, the University and student may be required to return the aid, or a portion of it, to the federal government.

Tuition Refund Policy: The University has a tuition refund policy stipulating the amount of tuition and fees refunded to a student who withdraws from all classes during a term. The Registrar’s Office determines specific refund dates each term (umdearborn.edu/students/registration-records/academic-calendar-important-dates and select “Registration Deadlines” for the specific semester). Students must notify the Registrar’s Office immediately by following specific withdrawal procedures. Visit umdearborn.edu/students/registration-records for hours of operation.

Unofficial withdrawals

The federal government considers an unofficial withdrawal one in which a failing grade is received when a student does not attend, or stops attending, a class for which he/she is enrolled. In these cases, students can be required to repay aid received. If you have questions about enrollment and aid eligibility, contact the Office of Financial Aid and Scholarships for assistance.

Allocating returned Title IV (federal) financial aid

Funds returned to the federal government reimburse the individual federal programs from which the student received the aid. Financial aid returned (by the university and/or the student or parent) must be allocated, in the following order, up to the net amount disbursed from each source:

• Federal Direct Loan
• Federal Direct PLUS Loan
• Federal Direct Stafford Loan
• Federal Perkins Loan
• Federal Work Study
• Federal Pell Grant
• Federal SEOG
• Federal TEACH Grant
• Federal TCAP
• Federal Veterans Administration
• Other Federal Programs
• Other Federal Programs
Student Consumer Rights and Responsibilities

The Office of Financial Aid and Scholarships is notified by the Registrar when a student has officially withdrawn from the University. The federal government mandates that students withdrawing from all classes may keep only the financial aid they have "earned" up to the time of withdrawal.

Title IV funds disbursed in excess of the earned amount must be returned by the University and/or the student to the federal government. The student could owe the University, the government, or both.

The calculation for Return of Title IV funds is based upon the date on which a student initiates the withdrawal process by indicating intent to withdraw. This is either by speaking with an academic advisor, member of the Registrar’s staff, or completing the University’s withdrawal form.

Students who withdraw will have academic activity confirmed by their instructors to determine the last date of attendance. Failure to receive attendance or participation, from instructors, will result in cancellation of all aid for that semester.

To determine what a student earns, we:

- Divide the number of calendar days the student has attended classes by the total number of calendar days in the semester (minus any scheduled breaks of 5 days or more).
- The resulting percentage is multiplied by total federal funds disbursed (either to the student's University account or to the student directly by check or direct deposit) for the semester.
- This calculation determines the amount of aid earned that a student may keep. (For example, if the student attended 25% of the term, he will have earned 25% of the aid disbursed. The unearned amount must be returned to the federal government by the University and/or the student.)

We will notify students who are required to return funds to the government. In some instances, students who withdraw may be eligible for a post-withdrawal disbursement of "earned" aid. The following conditions must be met for the student to be considered eligible:

- The student must have submitted a valid FAFSA to UM-Dearborn prior to date of withdrawal.
- UM-Dearborn must have made an offer of federal aid to the student. In the case of a Direct Loan, the University must have originated the loan with the U.S. Department of Education, must have documentation that the student signed a loan promissory note, and must be making the first disbursement of the loan.

Students considering withdrawal from all classes should contact the Office of Financial Aid and Scholarships and their academic advisor so that the consequences of withdrawing from all classes can be explained. Financial aid counselors can further explain this policy to students and parents.

Section 493.A of the Higher Education Act requires post-secondary educational institutions to disseminate relevant, candid information on student financial aid programs available at the college. Any change in a student’s financial situation, address, or school enrollment must be reported to the Office of Financial Aid & Scholarships. Students have the right to request a review of their financial aid package when a change in family or personal circumstances occurs. Students also have a right to review their financial aid records and may do so during counseling hours.

Information Dissemination and Report Disclosure

The U.S. Department of Education requires UM-Dearborn to disseminate information and disclose certain information to students. This information includes, but is not limited to: Voter Registration, Equity in Athletics, Campus Crime and Security, Completion and Transfer-Out Rates, and Drug and Alcohol-Free Campus policies. For further information on the listed topics, please refer to the University website at umdearborn.edu/students/financial-aid/consumer-information.

Registration & Records

Enrollment Services/Registration and Records
4901 Evergreen Road
1169 University Center
Dearborn, MI 48128
313-583-6500
313-593-4896 [FAX]
graders@umich.edu
umdearborn.edu/registration

The mission of the University of Michigan-Dearborn Enrollment Services/Registration and Records Office (ES/R&R) is to provide accurate academic record information and policy services to faculty, staff, students, alumni, the administration and external constituencies. The ES/R&R collects and disseminates student, course, and instructional information through processes that ensure the integrity and security of all academic records particularly with regard to the Family Educational Rights and Privacy Act (FERPA) as set forth by the Federal Government.

The Office is responsible for all aspects of student registration and academic records. The Office’s primary functions include schedule preparation, registration, grade processing and custodianship of student records. In addition, we are charged with the responsibility of communicating and administering academic policies, which we endeavor to enforce consistently and fairly. These activities are integral to the educational activities of the University, thereby supporting the primary mission, aspirations, and goals of the University of Michigan-Dearborn.

Auditing

Students are expected to elect courses for credit. The student’s program adviser, however, with the concurrence of the instructor involved, may grant official auditing privileges when they are warranted for educational reasons. A student auditing a course is charged the usual fee for that course. Any specific conditions must be enunciated by the instructor at the time permission is granted for the audit. (Contact your unit office for specific information and instructions.)
Change of Fees and Refunds

When appropriate, a change of fees will be processed by the Office of Registration & Records when a student submits a "Add/Drop/Registration Form" or "Withdrawal Form" which affects the fee previously assessed. Individuals are also advised to see "Change in Course Elections" in this Catalog.

Refunds of tuition, fees, or student account credit balances are generated automatically. After authentication and processing, the refund is issued to the student.

Adding

A student who increases the number of hours elected will have a new fee assessment prepared by the Office of Registration & Records, which will indicate the appropriate fee to be paid.

Dropping (for Full, Half, and Four-Week Mini Courses)

A student who, during the first two weeks of a full term or the first week of a half term or mini-term reduces the number of hours elected, will have a new fee assessment prepared by the Office of Registration & Records, which will indicate the appropriate fee to be paid. No reduction in fee assessments will be made after the end of the second week of classes (first week of a half-term) except in cases of withdrawal from the University.

Dropping (for less than One-Month Mini Courses)

A student may drop a course(s) during the first two weeks of a full term, the first week of a half term or mini-term, or before the second class meeting of a less than one-month mini-term. Any exceptions for adding courses must be approved by the student’s academic unit.

Withdrawing (for Full, Half, and Four-Week Mini Courses)

A student who withdraws from UM-Dearborn is assessed as follows:

1. Students who withdraw prior to the first day of classes will not be charged any tuition assessments or fees.
2. Students who withdraw during the first week of a half term or mini-term, or during the first two weeks of a full term, will not be charged any tuition assessments or fees.
3. Students who withdraw during the second through third week in a half term or mini-term, or in the third through sixth week of a full term, will be charged 50% of the tuition assessed, as well as the non-refundable registration assessment. In addition, there is no reduction in lab/course fees or technology assessment.
4. Students withdraw after the time periods indicated in Paragraph "3" will be assessed full tuition and fees.

Withdrawal (For Less Than One-Month Mini Courses)

1. Students who withdraw from a less than one-month mini course before the first class meeting of such a course will not be charged any tuition assessments or fees.
2. Students who withdraw from a less than one-month mini course on the first day of class will not be charged any tuition assessments or fees.
3. Students who withdraw from a less than one-month mini course on the second day of class will be assessed 50% of the tuition assessed, as well as the non-refundable registration assessment. In addition, there will be no reduction in lab/course fees or technology assessment.
4. After the second class meeting of such a course, the student shall pay all fees and assess

Change in Course Elections: Add, Drop, Withdrawal

(See Also “Change of Fees And Refunds”)

Changes in course elections include adding a course(s), dropping a course(s), substituting course(s), and withdrawing (discontinuing) all courses. All students will process their add/drop and withdrawals online or at the Enrollment Services Counter (1169 UC, with signatures when appropriate).

Please consult the section on “Change of Fees and Refunds” for the impact on tuition and fees.

Add

A student may add courses or change a standard graded course to Pass/Fail or Audit during the first two weeks of a full term, the first week of a half term or mini-term, or before the second class meeting of a less than one-month mini-term. Any exceptions for adding courses must be approved by the student’s academic unit.

Drop

A student may drop a course(s) during the first two weeks of a full term, the first week of a half term or mini-term, or before the second class meeting of a less than one-month mini-term. No record of the student’s brief enrollment will be recorded.

Courses may be dropped during the third through the ninth week of classes in a full term, during the second through the fourth week of classes in a half term or mini-term, and before the third class meeting in a less than one-month mini-term.

The effective date of the drop is the date the drop form is received and signed at the Enrollment Services Counter.

Permission to drop courses under circumstances other than stated above will require the approval of the student’s academic unit.

Withdrawal

A student may discontinue all of his/her courses through the last day of classes (for the term) by withdrawing from the term. The completed form must be presented to the Enrollment Services Counter for processing. The effective date of the withdrawal is the date the withdrawal form is received and signed at the Enrollment Services Counter.

If a student withdraws (drops all courses) from a term during the first two weeks of classes in a full term, the first week of classes in a half term or mini-term, or before the second class meeting in a less than one-month
Grading System

Grade point averages (scholastic averages) are computed by dividing the honor points a student has earned by the hours elected. The term grade point average and the cumulative grade point average are computed for each student at the end of each term and become part of the student’s official UM-Dearborn academic record.

Symbols used in the grade reporting system common to all units are: F, failed (pass/fail option election); I, incomplete; NR, grade not reported; P, passed (pass/fail option election); S, satisfactory (courses graded S/E or S/U); NC, no credit; VI, audit; W, drop/withdrawal; X, absent from final examination; U, unsatisfactory (courses graded S/U only); Y, indicates the course extends beyond the term.

The grades of E, IE, UE or XE are not assigned honor points and thus will lower the student's grade point average. The grade NC is used only for certain courses. When this grade is officially granted, the grade NC and the course will appear on the student’s transcript, but the course will not be used in computing a grade point average.

The recording of grades on a student’s official academic record is governed by the following (4.0) grading system:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A,A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.4</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.4</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.4</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
</tr>
<tr>
<td>E</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: The A+ and D- grades are not used by Engineering instructors. The A+ grade is not used by Education instructors.

Grades associated with transfer credit from other schools or colleges (including other University of Michigan campuses) are neither recorded nor used in computing grade point averages of students.

Students may repeat a course no more than two times. All grades received must appear on the transcript, but only the last grade received is counted in the grade point average (GPA). Please see the Repeat Course Policy for more information.

Grade Notations

The following notations may appear on a transcript to describe special situations in regard to a course.

NC No Credit. No honor points. Not computed in the grade point average. Used only in specially approved courses that are graded A, B, C, No Credit.

I Incomplete. No honor points. A student whose coursework for the term (other than final examination) is incomplete in a minor way may, upon completion and approval of the I Contract Form, be granted the privilege of completing the work within a five-week period for the College of Engineering and Computer Science, the College of Business, and a four-month period for the College of Arts, Sciences, and Letters, and Letters and College of Education, Health, and Human Services beginning on the first day of classes of the immediately following term. If granted this privilege, a grade of I will be recorded. Failure to complete the required work within the specified time, or the denial of this privilege by the instructor, may result in a grade of E for the final grade.

In extenuating circumstances an extension beyond the stated period may be requested by means of a petition that has been endorsed by the instructor and approved by the Academic Standards Committee. However, such arrangements for completing the work must be made within the above stipulated time period. Failure to complete the required work within the specified...
time may result in a grade of I being automatically treated as an IE and counted in the student's grade point average. The I will remain on the transcript even after the official final grade is assigned.

**X Absent from Final Examination.** No honor points. A student who is unavoidably absent from a final examination may be granted the privilege of making up the examination within five weeks beginning from the first day of classes of the immediately following term. If granted this privilege, a mark of X will be recorded. Failure to take the examination within the specified time, or the denial of this privilege by the instructor, will result in a mark of E for the final grade. In extenuating circumstances an extension beyond the stated period may be requested by means of a petition that has been endorsed by the instructor. However, such arrangements for completing the work must be made within the above five-week period. The grade of X will automatically be converted to XE and reflected in the student's grade point average as a failing grade if the Supplementary Grade Report is not submitted by the end of the five-week period.

**Y Course extended beyond term end.** No credit. No honor points. A mark of Y indicates that a course extends beyond the end of one term. This mark is only used for courses that have been specially designed and approved to extend beyond the end of one term. A course with a Y mark may not be completed after graduation. If such a course is not completed, the Y will be converted to an E upon graduation.

**NR Grade Not Reported.** No honor points. Student should consult the Registrar immediately.

**W Official Withdrawal.** No credit. No honor points. Not computed in the grade point average. Students who drop a course or withdraw from all courses for a term before the deadline for official drops and/or withdrawals will receive for these courses the W notation. This notation may not be removed from the transcript.

**S/E Used only for specially approved courses.** If a student passes, an S (satisfactory) is awarded. It is not computed into the grade point average. If a student does not pass, an E is awarded. If a student stops attending, without officially dropping, a UE is awarded. Both the E and the UE are computed in the GPA as failing grades. (Exception: Failing grades in additive credit courses that are graded S/E have no impact on the GPA.)

**P/F Pass/Fail Option.** No honor points. A student must elect to take a course under the Pass/Fail option. Please check with your college for its policy on electing courses as pass/fail.

**UE Unearned Fail.** This grade is assigned to any student who has never attended, or stopped attending class during the semester and did not officially drop. It is computed in the GPA the same as an E.

**VI Visitor-Official Audit.** No credit. No honor points. Not computed in the grade point average. An official audit, or visitor status, allows a student to attend a course but not elect it for credit. The VI notation appears on the transcript. Regular tuition fees are assessed.

## Change of Grades

The grade that an instructor records on the final grade sheet and that appears on the student’s subsequent transcript is assumed to be final; that is, the instructor’s official evaluation of all of a student’s performance and work completed by the official end of the term (the last day of the final examination week).

The University permits a change of grade under the following circumstances:

1. Recognizing that mistakes can be made, the University of Michigan-Dearborn permits a student to ask an instructor for a review of a grade within a five week period after the end of the term involved. After the expiration of this deadline, a student may initiate a request for a review only through the petition process involving the student’s college Academic Standards Committee (or comparable group), whose decision shall be final. Such a review is entirely separate and distinct from the circumstances involving an X (Absent from Final Examination), I (Incomplete Coursework), or a Y (Course Extends Beyond Term).

2. A student (or instructor) may initiate a grade change if he/she discovers that a grade has been entered in error due to, but not exclusive to, the following:
   - possible omission by the instructor when computing the final grade, or material submitted by the student before the end of the term;
   - possible error in evaluation by the instructor of work submitted or final examination taken by the student before the end of the term;
   - possible error by the instructor in the computation of the final grade;
   - possible error in the recording of the grade by the instructor or staff; or
   - allegation of bias or prejudice on the part of the instructor in the assignment of the final grade (This rare charge is to be handled according to the procedures established within the academic unit.).

## Grading Benchmarks

The University of Michigan-Dearborn seeks to provide greater clarification as to the characteristics for each grade level. The descriptions below provide general achievement targets for each grade level.

The grading benchmarks do not establish a campus-wide mandate for faculty grading or grading outcomes. Instructors at the University of Michigan-Dearborn have the autonomy to formulate their own grading standards and system. Students should discuss and confirm with their instructor the grading system and requirements employed within their course(s).

### Grading Benchmarks

<table>
<thead>
<tr>
<th>Benchmarks</th>
<th>Grade</th>
<th>Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior Achievement</td>
<td>Outstanding: A/A+</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Excellent: A-</td>
<td>4.0</td>
</tr>
<tr>
<td>Good Achievement</td>
<td>Very Good: B+</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>Good: B</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Generally Good: B-</td>
<td>2.7</td>
</tr>
<tr>
<td>Adequate Achievement</td>
<td>Satisfactory: C+</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Sufficient: C</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Marginal: C-</td>
<td>1.7</td>
</tr>
<tr>
<td>Limited Achievement</td>
<td>Poor: D+</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Very Poor: D</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Extremely Poor: D-</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Grading Benchmark Achievement Levels

Superior Achievement (A level)

The grade of A recognizes exceptional performance and achievement that exceeds course expectations and consistently demonstrates, where applicable, many of the following characteristics:

- Thorough, deep, and mature understanding.
- Genuine comprehension, insight, and synthesis.
- Significant mastery of challenging topics and issues.
- Extensive familiarity with relevant literature and previous work.
- Highly developed communication skills.
- Thorough preparation and extensive, thoughtful class participation.
- Integration of knowledge, concepts, and principles across disciplines.
- Originality of analysis and interpretation.
- Technical competence in skills and procedures.
- Precision of ideas and clarity of expression.
- Thinking that is independent, creative, and focused.
- Understanding of nuance and subtlety.
- Consistent coherence in argument and discussion.

Students who receive the grade of A consistently demonstrate, where applicable, the ability to:

- Analyze arguments using specific examples and original sources.
- Think logically, draw inferences, and make predictions in complicated situations.
- Communicate reasoning clearly and concisely.
- Think abstractly.
- Identify strengths and weaknesses in arguments, policies, and practices.
- Integrate information to draw well-founded conclusions.
- Connect course content to issues of other courses and world affairs.
- Use models appropriately; recognize their strengths and accommodate their inherent limitations.
- Foresee and evaluate consequences of proposed policies and actions.
- Use technology creatively and effectively.

Good Achievement (B level)

The grade of B recognizes work that meets course expectations and typically demonstrates, where applicable, many of the following characteristics:

- Clear connections between inferences and evidence.
- Care in the use of evidence and quotations with only occasional thinness in argument, detail, or precision.

Students who receive the grade of B typically demonstrate, where applicable, the ability to:

- Extend ideas by connecting with personal experiences, reading, or world events.
- Analyze data in various forms and from varied sources.
- Utilize information to explain events, draw conclusions, and apply results.
- Present comprehensive answers in a clear and logically correct style.
- Understand and compare various models.
- Distinguish inputs from outputs, and causes from effects.
- Recognize consequences of complex interactions.
- Use technology effectively.

Adequate Achievement (C level)

The grade of C recognizes work that is sufficient to prepare for continued study in the field and generally demonstrates, where applicable, some of the following characteristics:

- Adequate grasp of course concepts.
- Partial mastery of knowledge and skills required for understanding.
- Incomplete familiarity with relevant readings or references.
- Writing that lists facts rather than develops well-reasoned arguments.
- Frequent neglect of important information.
- Partial appreciation of the meaning or implications of a question.
- Answers that are insufficiently developed.
- Minimally complete assignments with many areas for improvement.

Students who receive the grade of C generally demonstrate, where applicable, some ability to:

- Assimilate and communicate simple knowledge and procedures.
- Extend ideas by making simple inferences.
- Make connections among and draw conclusions from course concepts.
- Interpret simple information provided in various formats.
- Organize and display data in tables and graphs.
- Use technology competently.

Limited Achievement (D level)

The grade of D indicates a lack of readiness to continue in the field. Students’ work usually demonstrates, where applicable, some of the following characteristics:

- Minimal understanding of the subject matter.
- Poorly developed communication skills.
- Inability to apply subject matter understanding in other contexts.
- Little evidence of critical or creative thinking.
- Lack of apparent seriousness.
- Frequent carelessness in fulfilling assignments.

Inadequate Achievement (E)
The grade of E indicates that course work is insufficient to merit academic credit. Students who receive an E usually demonstrate some of the following characteristics:

- Inadequate understanding of subject matter.
- Inadequate or inconsistent preparation.
- Frequent failure to complete assignments in a timely manner.
- Little evidence of critical thought.
- Very poor communication skills.
- Frequent misunderstanding of facts or references.
- Little or no analysis.
- Confused or incomprehensible writing.

Little or no work offering evidence that course objectives have been met.

Graduation/Application for Diploma

Each candidate for a degree must file a Degree/Diploma Application with the Office of Registration & Records, typically within ten days of the beginning date of classes for the term in which the student expects to complete the requirements for degree. Please consult the Applying to Graduate Webpage, umdearborn.edu/rr_apply-graduate, for specific dates. Applications will not be accepted after the published deadlines. If an application for a diploma was filed for a previous graduation period in which the student did not graduate, a new application is necessary. Degrees are granted at the end of the fall, winter, and summer terms, even though commencement exercises are held only in April (or May) and December.

Instructor Requested Drop

A student who is absent from class meetings of a course during the first week of any term and does not inform the instructor or the instructor’s department of his/her intention to continue as a class member may receive a request, by the instructor, to drop the course. The student is responsible for processing all paperwork to officially drop this or any course. Please consult the Registration & Records web site for procedures on how to drop courses.

Registration Information

Academic Advising

Academic advising should be sought from the student’s school, college or graduate department office prior to registration.

Appointment Time to Register

Continuing students who are eligible to register via the Web can determine their registration date based on credits earned as listed in the registration timetable. New students and those participating in non-traditional programs will receive written information regarding their registration appointment time. The Registration Timetable is available on the Office of Registration & Records Website (umdearborn.edu/registration).

Closed Courses

Closed course information will be posted at the Enrollment Services Counter (1169 UC) and on the Office of Registration & Records Website (umdearborn.edu/registration).

Course Load

Students may elect a maximum of 18 credit hours in a given semester. Students should contact their college for policies and procedures regarding electing hours in excess of the maximum.

Holds

Students will not be allowed to register if they have a hold. A hold could result from having outstanding financial obligations to the University, academic probation, mandatory advising or other academic or non-academic conditions that require resolution prior to registration. Students can check their holds on UM-Dearborn Connect. See the “View Your Holds” page located in the secure area under the Student Accounts menu.

Personal Identification Number (PIN)

The University originally assigns your birth date (mmddyy) as your personal identification number (PIN). For your security (if you have not already done so), change this number immediately via UM-Dearborn Connect. Once you have changed the PIN, your new PIN remains in effect until you change it again. If you forget your PIN, use the ‘Forgot PIN’ button in UM-Dearborn Connect or you must report in person, with picture identification, to the Enrollment Service Counter to have your PIN reset.

Registration Options

UM-Dearborn offers eligible students two options for registration:

- Walk-in
- Web

1 All students (with the exception of some non-traditional programs) who have been enrolled at least one term within the last year, new graduate students, and readmitted students who do not have financial obligations, holds or other registration restrictions are eligible to register via UM-Dearborn Connect. New transfer and new freshman students will register during New Student Orientation.

Reporting of Grades

The Office of Registration & Records reports term grades to students via a Final Grade Report in UM-Dearborn Connect. Grades are also reported on each student’s Academic Transcript. Updated Academic Transcripts are available to students two weeks following the close of the final examination period. Students requiring more immediate service may contact Enrollment Services for assistance. (Also see “Request for Transcripts”).

University of Michigan Guidelines for Qualifying for In-State Tuition

You may qualify for in-state tuition in any of the following three ways:

1. Residence. By demonstrating that you are a permanent legal resident of the State of Michigan as defined by these Guidelines (see Part I below);
2. Attendance. By demonstrating that you attended an accredited Michigan high school and accredited Michigan middle or junior high school (see Part II below); OR
3. Service. By demonstrating that you or a family member are serving or have served in the U.S. military or Public Health Service (see Part III below).

You may meet the criteria under more than one Part of these Guidelines. However, if you meet the criteria under one of the three Parts, you are not required to determine eligibility under the other two.

I. Establishing Eligibility Through Michigan Residence

You may qualify for in-state tuition by demonstrating that you are a Michigan resident.

A. General Principles

The University of Michigan has autonomous, constitutional authority to establish residency guidelines that apply to the University. The University’s residency guidelines are independent of other state rules or regulations governing residency for other purposes, including income and property tax liability or eligibility to vote or drive.

To qualify for in-state tuition at the University of Michigan on the basis of being a Michigan resident, you must establish that Michigan is your permanent legal residence. In other words, you must establish that the State of Michigan is your home and that you intend to remain in the State permanently. This will depend on, among other things, where you live, work, and attend school; where you have lived, worked, and attended school; where your parents or guardians live; and other evidence that you intend to make Michigan your permanent home.

The Board of Regents of the University of Michigan has charged the Residency Classification Office in the Office of the Registrar on the Ann Arbor campus with determining the residency of current and prospective students for all three University of Michigan campuses. If you are seeking in-state tuition on the basis of residence in the State of Michigan and your application, activities, and circumstances demonstrate that Michigan is your permanent legal residence, you will be classified as a resident. If, however, you seek in-state tuition on the basis of residence but your presence in the State is based on activities or circumstances that are determined to be temporary or indeterminate, you will be classified as a nonresident.

B. Process for Establishing Residency

1. Who Must Submit an Application for Resident Classification?

If you seek to qualify for in-state tuition as a Michigan resident and your application, circumstances, or activities suggest that you may have out-of-state activities or ties (as described below), you will be required to apply to be evaluated and classified as a resident or nonresident. This means completing an Application for Resident Classification truthfully and timely and submitting additional documentation.

Specifically, you must file an Application for Resident Classification if you seek in-state tuition on the basis of Michigan residence and have any of the following out-of-state activities or ties:

- you live outside the State of Michigan for any purpose, including, but not limited to, education, volunteer activities, travel, or employment;
- you attended or graduated from a college outside the State of Michigan;
- you lived or worked outside the State of Michigan at any time within the last three years;
- you are not a U.S. citizen;
- your spouse, partner, or parent is in Michigan as a nonresident student, medical resident, fellow or for military assignment or other temporary employment;
- you are 24 years of age or younger and a parent lives outside the State of Michigan;
- you are 24 years of age or younger and attended or graduated from a high school outside the state of Michigan;
- you attended or graduated from an out-of-state high school and have been involved in educational pursuits for the majority of time since high school graduation;
- you attended any University of Michigan campus (Ann Arbor, Dearborn, or Flint) as a nonresident.

Other circumstances also may require you to file an Application for Resident Classification.

If Michigan is in fact your permanent legal residence, as demonstrated by your admissions application, activities, and circumstances, you have none of the out-of-state activities or ties listed above, and your admissions application truthfully asserts that Michigan is your permanent legal home, you may claim Michigan as your legal residence and will not be required to complete an Application for Resident Classification. The University in its discretion may require you to complete an Application for Resident Classification and submit supporting documentation to determine whether you are a resident or nonresident under the University’s Guidelines. The University also reserves the right to audit your information and re-classify you as a nonresident.

2. How Will Your Application For Resident Classification Be Evaluated?

If you are required to file an Application for Resident Classification, the University’s Residency Classification Office will evaluate the information you provide to determine whether you have presented clear and convincing evidence demonstrating that Michigan is your permanent legal residence. The next sections of these Guidelines are designed to explain in greater detail the standards the Residency Classification Office will apply as your Application for Resident Classification is considered.

a. Circumstances that may demonstrate permanent Michigan residence

The following circumstances and activities, though not conclusive or exhaustive, may lend support to a claim that Michigan is your permanent legal residence:

- Both of your parents or parents-in-law (or in the case of divorce, one parent or parent-in-law) are permanent legal residents of Michigan as demonstrated by permanent employment in the State, establishment of a primary household in Michigan, and severance of out-of-state ties. You must also show that you have severed all out-of-state ties that suggest another state is your legal residence.
- You are employed in Michigan in a full-time, permanent position, your employment is the primary purpose for your or your family’s presence in the State, and you have severed any out-of-state ties that suggest another state is your legal residence.
- Your spouse or partner is employed in Michigan in a full-time, permanent position, your spouse or partner’s employment is the primary purpose for your family’s presence in the State, and you
have severed all out-of-state ties that suggest another state is your legal residence.

b. Circumstances that do not demonstrate permanent Michigan residence

The circumstances and activities listed below are most often temporary or indeterminate and do not demonstrate permanent residence in Michigan. Individuals whose claim to Michigan residence is based solely on one or more of the following will generally not be found to be Michigan residents for tuition purposes:

- you are enrolled in a high school, community college, or university in Michigan;
- you are in a medical residency program, fellowship, or internship in Michigan;
- your employment in Michigan is temporary or short-term or of the type usually considered an internship or apprenticeship;
- your spouse or partner’s employment in Michigan is temporary or of the type usually considered an internship or apprenticeship;
- your spouse or partner’s employment in Michigan is permanent but you are in the State for temporary reasons;
- your employment position in Michigan is normally held by a student;
- you have paid Michigan income tax or filed Michigan resident income tax returns;
- your relatives (other than parents) live in Michigan;
- you own property or pay Michigan property taxes;
- you possess a Michigan driver’s license or voter’s registration;
- you possess a Permanent Resident Alien visa;
- you have continuous physical presence in Michigan for one year or more;
- you sign a statement of intent to be domiciled in Michigan.

c. Immigrants and Aliens

If you are a permanent resident alien, an asylee or refugee, or possess an A, E, G, or L visa, you may be eligible for in-state tuition if you provide official documentation establishing your immigration status and demonstrate that Michigan is your permanent legal residence as defined under these Guidelines. Dependent children who hold an E visa are not eligible to be considered for resident classification. Individuals holding temporary visas, including, but not limited to F, H, J, K, L, Parolee, TN, and TD visas, are not eligible for in-state tuition as a Michigan resident.

d. Dependent Students

You are presumed to be a dependent of your parents if you are 24 years of age or younger and (1) have been primarily involved in educational pursuits, or (2) have not been financially self-supporting through employment.

- If you are a dependent student, and both your parents are legal residents of another state, you are presumed to be a nonresident.
- If you are a dependent, your parents or parents-in-law are divorced, and at least one parent or parent-in-law is a permanent legal resident of the State of Michigan (as defined in these Guidelines), you are presumed to be a resident if you can demonstrate that (a) Michigan is your permanent legal residence and (b) you have severed all out-of-state ties.
- If you are a student living in Michigan with your parents and a permanent legal resident of this State as defined by these Guidelines, you are presumed to retain resident status eligibility even if your parents leave the State if all of the following are true: (1) you have completed at least your junior year of high school before your parents’ departure; (2) you remain in Michigan, enrolled full-time in high school or an institution of higher education; and (3) you have not taken steps to establish a legal residence outside Michigan or any other action inconsistent with maintaining a permanent legal residence in Michigan.

e. Michigan Residents and Absences From the State

You may be able to retain your eligibility for resident classification under the conditions listed below if you are a permanent legal resident of Michigan under these Guidelines and leave the State for certain types of activities. However, if you have been absent from the State, you must file an Application for Resident Classification by the appropriate filing deadline to request resident classification and demonstrate your eligibility.

- Absence for Active Duty Military Service (U.S. Army, Navy, Air Force, Marines, Coast Guard, Merchant Marine, Officers in the Public Health Service), Non-Administrative Missionary Work, Peace Corps, AmeriCorps, or Similar Philanthropic Work

If you are a permanent legal resident of Michigan as defined by these Guidelines when you enter active military duty, missionary work, Peace Corps, or similar service, you are presumed to retain your eligibility for resident classification if you (1) are on continuous active duty or in continuous service and (2) continuously claim Michigan as your state of legal residence for income tax purposes. If you are a dependent child of such an individual, you are presumed to be eligible for resident classification if both of the following are true: (1) you are coming to the University of Michigan directly from high school or have been continuously enrolled in college since graduating from high school; and (2) you have not claimed residency for tuition purposes elsewhere.

- Absence Because of Temporary Foreign Assignment

If you are a dependent student and you and your parents are permanent legal residents of Michigan immediately preceding an absence for a temporary foreign assignment with a parent’s Michigan employer, you may retain your eligibility for resident classification if both of the following are true: (1) your family members hold temporary visas in the foreign country, and (2) you return directly to Michigan and remain in the State for educational purposes after leaving the foreign country.

- Temporary Absence of Less Than One Year

If you are independently a permanent legal resident of Michigan immediately preceding a temporary absence of less than one year, you are presumed to retain eligibility for resident classification provided that, immediately upon your return to Michigan, you sever any out-of-state ties that suggest another state is your legal residence.

3. What Documents Must You Submit With Your Application For Resident Classification?

Along with your completed Application for Resident Classification form, you must submit additional documents.

- All Applicants. All applicants must submit the following additional documents with an Application for Resident Classification:
  - copies of your driver’s license and the license(s) of the person or persons upon whom you are basing your claim to resident eligibility;
  - copies of the front and signature pages of the most recent year’s federal and state income tax returns and W2 forms for you and
the person or persons upon whom you are basing your claim to resident eligibility; and
• any other documentation that supports your claim to resident eligibility.

b. Dependents. If you are claimed as a dependent on federal or state income tax returns, or are presumed to be a dependent under these Guidelines, you must also submit the following documents:

• copies of the front and signature pages of your parent’s most recent federal and state income tax returns, along with accompanying W2s (and Schedule C and E if self employed) along with your parent’s most recent pay stubs showing Michigan income taxes being withheld.

c. Applicants Claiming Residency on the Basis of Employment. If you are seeking to establish that you are a Michigan resident on the basis of your permanent employment in the State, or the permanent employment of your parent, spouse, or partner, you must also submit the following documents:

• a signed letter from the employer, written on letterhead (including phone number), stating the position, status, and dates of employment; and
• a copy of the most recent pay stub showing that Michigan taxes are being withheld.

d. Applicants Born Outside the United States. All applicants born outside the United States seeking to establish eligibility for in-state tuition based on Michigan residency must also submit documents verifying U.S. citizenship or lawful permanent residence in the U.S.

4. Will You Be Required To Submit Additional Documentation?
In addition to the documentation required above, the Residency Classification Office may request additional documentation after the initial review of your application.

5. What Happens To Materials Submitted With An Application For Resident Classification?
Applications and accompanying documentation will be retained by the University of Michigan in accordance with its policies and procedures. All information will be kept confidential to the extent permitted by law.

6. What Information Does the Residency Classification Office Consider?
In making residency determinations, the University considers all information provided with your Application for Resident Classification and any other available information it determines to be relevant.

7. How Do You File An Application for Resident Classification?
Before filing an Application for Resident Classification, you must read Part VI below. The Application for In-State Tuition is available online at the link at the bottom of this page under the Applications for In-State Tuition section. Please read the instructions carefully before submitting your application.

II. Establishing Eligibility by Attending Michigan Schools
You also may qualify for in-state tuition by demonstrating all of the following: (1) you attended an accredited Michigan middle or junior high school for at least three years and thereafter (a) graduated from an accredited Michigan High School or (b) received a Michigan General Educational Development High School Equivalency Certificate (GED); (2) you attended an accredited Michigan middle or junior high school for the two years preceding high school; and (3) you are commencing your education at the University within twenty-eight months of graduating from the Michigan high school or receiving your GED.

To establish eligibility by demonstrating attendance at Michigan schools, you must complete the following form truthfully and timely: Application for In-State Tuition on the Basis of Attendance. You do not need to be a legal resident of the State of Michigan or United States to qualify under Part II.

III. Establishing Eligibility Through Service
You also may qualify for in-state tuition, without regard to your legal residence, by demonstrating any of the following:

1. you are serving on active duty in the U.S. Army, Navy, Air Force, Marines, National Guard, Merchant Marine, or Coast Guard;
2. you are a reservist in one of those branches;
3. you were honorably discharged or received a general discharge under honorable conditions from one of those branches or their reserve component;
4. you are serving as an officer in the U.S. Public Health Service;
5. you are the spouse or dependent child of someone living or stationed in Michigan who is serving in the U.S. Army, Navy, Air Force, Marines, National Guard, Merchant Marine, or Coast Guard, whether on active duty or as a reservist; OR
6. you are the spouse or dependent child of someone living or stationed in Michigan who is serving as an officer in the U.S. Public Health Service.

To establish eligibility by demonstrating service, you must complete the following form: Application for In-State Tuition on the Basis of Service, truthfully and timely.

IV. Deadlines
It is important to file your materials in a timely fashion. You may apply for in-state tuition for any term in which you are enrolled or intend to enroll. Late applications will be assessed a nonrefundable $300 late fee and will be accepted up to the last published day of classes of the term for which you are applying. Late applications received after the last day of classes will be treated as applications for the following term. In all cases, decisions will be based only on those facts that are in place by the original filing deadline for the term under consideration.

• Fall Term: all required materials must be received by 5:00 p.m. on September 30 of that term.
• Winter Term: all required materials must be received by 5:00 p.m. on January 31 of that term.
• Spring, Spring/Summer, and Summer Terms: all required materials must be received by 5:00 p.m. on July 31 of that term.

If the deadline falls on a weekend or University holiday, all required materials must be received by 5:00 p.m. on the next business day.

These deadlines apply to all University of Michigan schools, colleges, and campuses. For the On-Job or On-Campus program only, filing deadlines are 30 calendar days after the first scheduled day of classes of the term for which you are applying.
V. Appeals

If your request for in-state tuition is denied, you may file an appeal as described below.

The Board of Regents has charged the Appeal Committee with reviewing decisions about eligibility for in-state tuition. The Appeal Committee is chaired by the Vice President and Secretary of the University and includes two other University administrators, a faculty member, and a student. Staff of the Residency Classification Office are not members of the Appeal Committee.

Any appeal must be in writing and must be received by the Appeal Committee no later than 5:00 p.m. on the 30th calendar day following the date of the letter denying your request for in-state tuition. If the deadline falls on a weekend or University holiday, your appeal must be received by 5:00 p.m. on the next business day.

The mailing address for the Appeal Committee is as follows: Residency Appeal Committee, c/o 1210 LS&A Bldg., 500 S. State Street, Ann Arbor, MI 48109-1382.

If there is additional information you would like the Appeal Committee to consider beyond the materials you have already submitted, you should submit that additional information, in writing, with appropriate supporting documentation, with your written appeal. The Appeal Committee may consider the appeal letter and additional documentation along with all the information in your original request.

Personal contact with a member of the Appeal Committee about the subject of your appeal could disqualify him or her from participating in the decision regarding your appeal. The Appeal Committee does not meet in person with students, and appearances on behalf of students are not permitted at appeal meetings.

After the Appeal Committee has completed its deliberations, you will receive the Committee’s final decision in writing. This will conclude the appeal process for the term covered by the application. The University will not conduct any further review of the decision.

VI. Misrepresentations, Falsifications, Omissions; Audits; And Adverse Consequences

Individuals who provide false or misleading information or who omit relevant information in an attempt wrongly to obtain in-state tuition will be subject to severe legal and disciplinary measures, including but not limited to expulsion from the University and retroactive tuition charges. The University routinely audits information and documentation submitted with requests for in-state tuition to ensure compliance.

VII. Where Can You Obtain Additional Information?

For questions on in-state tuition, please contact:

Residency Classification Office
Office of the Registrar
1210 LSA Building
500 South State Street
Ann Arbor, MI 48109-1382
Phone: 734-764-1400

Applications for In-State Tuition

The Application for In-State Tuition is available online. Your access to the online application may depend upon your progress and status in the admissions application process, so please read carefully. In order to log in and complete an application for in-state tuition, you will need:

Your University of Michigan issued eight digit (UMID) number AND;

1. EITHER a University of Michigan issued uniqname and Ann Arbor/ Kerberos 1 password,
2. OR A Friend Account. 2
   a. Admitted Students (All campuses) AND all applicants who have previously been issued all of the following: UM ID number, uniqname and Kerberos password, can authenticate using your uniqname and Kerberos password. NOTE: see footnote 1 if you need to reset your password.
   b. Applicants not yet admitted, or with no previously issued uniqname or password must apply using a verified Friend Account:
      i Create a Friend Account: (friend.weblogin.umich.edu/friend/ (https://friend.weblogin.umich.edu/friend))
      ii Verify your Friend Account via Wolverine Access: wolverineaccess.umich.edu (https://wolverineaccess.umich.edu)

   Locate the New & Prospective Student Business (N&PS) link under the Students section on the Wolverine Access homepage. After logging in with your Friend Account and password, you will be immediately prompted to complete the one-time only Identity Verification steps (add University of Michigan ID (UMID) and birthdate). Once done, you will be prompted to Sign Out; this will bring you back to the Wolverine Access homepage. Navigate back to the N&PS link, and locate the link to the online In-State Tuition Application in the lower right of the page, or, you can login later using the Application for In-State Tuition link above; this will bring you directly to the application.

1 Ann Arbor/Kerberos Password:

For Flint and Dearborn students, this is NOT the password used to login to your campus’ Banner student information system (SIS). This is unique to the Ann Arbor campus. If you have been admitted and have a uniqname but are unable to log in to create an application, you might need to re-set your Ann Arbor/Kerberos password. Password assistance is different for each campus:

- Dearborn campus students click here (https://umdearborn.edu/offices/information-technology-services/accounts-passwords/passwords) for help and instructions for changing your password.
- Flint campus students click here (https://helpdesk.umflint.edu/customer/portal/articles/1627949-umich-password—usage—restrictions-and-how-to-change-it) for help and instructions for changing your password.
- Ann Arbor campus students click here (http://www.itcs.umich.edu/help/faq/uniqnames.php) if you need assistance with your password.
Transcripts

Transcript Information

A transcript is a student’s complete academic record at the University of Michigan-Dearborn. The transcript(s) that were presented for admission have become an integral part of the files of the admitting offices and cannot be released, either directly or for copying purposes. It will be necessary for you to write directly to the institutions concerned to obtain copies of those previous records. In addition, documents such as SAT/ACT scores are not available from Enrollment Services/Registration & Records. Transcripts will be released only upon written request of the student. Requests are processed within three to five business days. Under certain circumstances, such as the end of the term or upon graduation, requests may take longer to process. Requests will not be processed if you have any financial obligation outstanding to the University. No fee is required for standard delivery transcripts.

Types of Transcripts:

Official Transcripts are printed on special paper with the Registrar’s signature. Official transcripts given directly to a student will be stamped Issued to Student and may not be accepted by other universities.

Unofficial Transcripts are printed on plain paper and marked Student Copy.

Rackham Transcript Information

Students who attended Rackham, Winter 1998 through the present may direct the transcript request to the Dearborn campus as indicated above under “Dearborn Transcript Information.”

Students who attended Rackham prior to Winter 1998 or have graduated prior to January 1998 from the Rackham Graduate School must direct the transcript request to:

University of Michigan
Transcript Department
555 LSA Building
Ann Arbor, MI 48109-1382

Fax: 734-764-5556

Rush Transcript Information

Students may request a rush copy of their transcript in person at the Enrollment Services counter. A $10.00 rush fee per transcript (cash or check only) will be required at the time of the request. Requests received prior to 12:00 noon will be ready for pickup on the same day after 4:00 p.m. Requests received after 12:00 noon will be available for pickup the following day after 12 noon.

Web Transcript Information

Students are able to view and request transcripts online via the UM-Dearborn Connect (http://web-sis.umd.umich.edu) system. Please visit the Online Transcript Instructions (http://umdearborn.edu/rr_trans-instruc) page for more information.

Tuition Assessment and Fee Regulation

Tuition and fees are subject to the approval of the Regents of the University and are subject to change at any time.

Policies Governing Student Tuition and Fees

The Board of Regents shall determine the level of tuition and fees and a schedule of such shall be published. All other student tuition and fees shall be fixed by the Campus Fee Committee.

Payment of Tuition and Fees

All tuition and fees are payable in accordance with regulations established by the University providing only that said regulations may not defer payment beyond the end of the term for which they are assessed.

Payment for tuition and fees may be made in full at the Cashier’s Office, or online, after registration. The laboratory and/or course fees are refundable if the course is dropped during the first two weeks of a full term, the first week of a half term or mini-term, or before the second class meeting of a less than one-month mini-term. The procedure for obtaining a refund is described in the section “Change of Fees and Refunds.”

Application Fees

Graduate degree-seeking applicants must submit a $60 application fee. The application fee is nonrefundable and cannot be credited toward tuition or any other fees. When applying via the online application, the application fee can be paid by credit or debit card (Visa, MasterCard, or Discover). If a paper application is submitted, the $60 fee must be paid via check or money order (payable to UM-Dearborn).

Graduate non-degree or guest applications do not require a fee.

Undergraduate applicants are not charged an application fee regardless of how they apply.

Students who have paid the appropriate application fee at another campus of the University will not be assessed a second fee.

Course Level Assessment

Undergraduate students electing Graduate course(s) will be assessed at the Graduate Tuition rate for the graduate course(s). Graduate courses are numbered 500 and above. (Effective Winter 2007)

Graduate students electing Undergraduate course(s) will be assessed at the Undergraduate Tuition rate for Undergraduate course(s).

Undergraduate courses are numbered 499 and below. (Effective Fall 2006)
Please note: This tuition assessment is dependent on various factors and a change in tuition may not occur for some students.

Dual Status Tuition and Fees: Graduate And Undergraduate
Seniors who are within six hours of completing the requirements for graduation and who have been admitted to a UM-Dearborn graduate program may, with both undergraduate and graduate advisors’ approval, register simultaneously in a UM-Dearborn undergraduate unit and in a graduate program. Tuition and fees will be assessed at the graduate program level for graduate courses and the undergraduate program level for undergraduate courses.

Dual Enrollment Tuition and Fees: On Two Campuses Of The University
A student electing courses at UM-Dearborn and at another campus of the University, by means of a “Guest Admission,” will pay the appropriate tuition and fees at each campus. The only exception is that the student will not be assessed tuition and fees totaling more than a full program tuition and fees at whichever campus may have the higher full program tuition and fees.

Undergraduate Credit By Examination (CBE)
See the Special Examinations in the Policies section.

Laboratory and/or Course Fees
Students will be assessed a laboratory or course fee if enrolled in any of the courses so designated in the Schedule of Classes (e.g., “Lab fee $50.00”).

Late Registration Assessment
A late registration assessment of up to $45 will be assessed for anyone registering later than two weeks (one week for a half term) after the first day of classes. It should be noted that students are not ordinarily permitted to register after the first two weeks of a full term, the first week of a half term or mini-term, or after the second class meeting of a less than one-month mini-term.

In exceptional cases, a student might be permitted to enroll even after the first two weeks (and be charged a late fee) if the student has obtained the written approval of the dean (or a designated representative) of the college or school. Late registrants not pursuing a degree (PDS/PEs) must have the approval of both the Office of Academic Support and Outreach Services and the Registrar, as well as the approval of any instructors involved.

Fees Included Within Tuition
The tuition and fees assessed by the University include a nominal charge for parking and other transportation-related services, information technology services, the health referral service to the Henry Ford Hospital-Fairlane Clinic, facilities debt service, and support for student activities and organizations.

Exemption From Payment Of Fees
No exemption from the payment of fees shall be granted. Failure to fulfill financial obligations to the University may result in disciplinary action, including the withholding of degrees and transcripts.

New Student Fee
The New Student Fee of $75.00 is charged to all new incoming degree-seeking students at the time of registration. The fee will be automatically posted to the student’s account. This fee covers operational expenses required to deliver high-quality orientation programming for students. It also includes the administration of placement exams, regardless of participation in these activities. The New Student Fee is non-refundable unless a student withdraws from all courses in his/her first term or on or before the end of the drop/add period (the first two weeks of the term).

Tuition and Fees
Students should obtain current tuition and fee information from the Office of Registration & Records Tuition & Fees webpage, umdearborn.edu/rr_tuition-fees.

Additional Assessments
Course levels 300 and above are assessed an additional amount per credit hour. For current tuition and fee information, students should consult the Office of Registration & Records Tuition & Fees webpage, umdearborn.edu/rr_tuition-fees.

Technology Assessment
A Technology Assessment is charged to all students. This assessment varies by academic unit. For current tuition and fee information, students should consult the Office of Registration & Records Tuition & Fees webpage, umdearborn.edu/rr_tuition-fees.

Tuition Refund Insurance Plan
The Tuition Refund Insurance Plan is an elective insurance which provides coverage for tuition and fees. If a student withdraws due to illness/injury or psychological/emotional reasons, the Tuition Refund Insurance Plan returns 85% of the insured term tuition and fees when specific insurance company criteria has been met.

For Tuition Refund Insurance Plan information or to enroll online, please refer to the Tuition Refund Insurance Plan website: umdearborn.edu/rr_tuition-fees-refund-plan.

Special Tuition and Fee Adjustments
The Registrar and the Provost for Academic Affairs are authorized to make adjustments in the application of the policy stated above when, in their judgment, unusual circumstances warrant such action. Circumstances that may warrant special consideration include the death or serious illness of the student. The student who wishes to have his/her case reviewed must petition and submit documentation to the Office of Registration & Records, Room 1169, University Center, either in person or by mail. It is the responsibility of the student to make sure that required documents are submitted.

Except in rare and unusual circumstances, petitions will not be accepted after the last day of classes for the term concerned. Additionally, petitions will not be accepted once an account has been turned over for collection.
Enrollment Verification

Enrollment Verification requests cannot be processed prior to the end of the Change of Election (add/drop) period for the term requested.

When a loan agency, student loan provider, employer, insurance agency, etc. requires proof that a student enrolled at the University of Michigan-Dearborn, the Office of Registration & Records, at the students request, can provide an Enrollment Verification.

Loan Deferments

The University of Michigan-Dearborn uses the National Student Clearinghouse as the service for verifying enrollment for student loans. These verification requests will be processed by that agency within 10 business days of receipt of request at the Office of Registration & Records. Enrollment Verification request forms are available at the Office of Registration & Records, 1169 University Center, during regularly scheduled office hours or via this website. When requesting verification for a student loan, you must submit the official forms sent to you by the loan agency along with your request to the Office of Registration & Records.

All Other Requests

The Office of Registration & Records processes requests for verification, excluding student loan deferments. Requests are accepted via mail, fax, or UM-Dearborn Connect (online). Using the online Enrollment Verification Request Form requires a Personal Identification Number (PIN). Your PIN is used as an electronic signature, allowing us to release the information that you are requesting. For your security you should keep your PIN confidential. If you do not have a PIN or have forgotten it, please mail or fax the Printable Enrollment Verification Request Form. If you are requesting enrollment verification on a document that you have received, use the Printable Enrollment Verification Request Form, complete it, and mail or fax it along with the document to the Office of Registration & Records.

Scale

The following scale is used when verifying student enrollment status at UM-Dearborn:

<table>
<thead>
<tr>
<th>Status</th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Time</td>
<td>12 or more hours</td>
<td>8 or more hours</td>
</tr>
<tr>
<td>Three-Quarter Time</td>
<td>9-11 hours</td>
<td>6-7 hours</td>
</tr>
<tr>
<td>Half Time</td>
<td>6 to 8 hours</td>
<td>4-5 hours</td>
</tr>
<tr>
<td>Less Than Half Time</td>
<td>5 or less hours</td>
<td>3 hours or less</td>
</tr>
</tbody>
</table>

Please forward completed Printable Enrollment Verification Request Forms to:

University of Michigan-Dearborn
Office of Registration & Records
1169 UC
4901 Evergreen Road
Dearborn, MI 48128

Or Fax to:

University of Michigan-Dearborn
Office of Registration & Records
313-593-5697

Veteran Affairs

The goal of the Office of Veteran Affairs is to provide support to a diverse community of student veterans and enhance the experience of veterans as they move through our academic programs. We accomplish this mission by:

- Providing academic assistance and tutoring
- Coordinating access to Counseling and Disabilities Services
- Providing veteran specific enrollment and certification services
- Maintaining a dialog with our Student Veterans of America Chapter and the Association of Women Veterans
- Retaining points of contact in Financial Aid, Cashiers/Student Accounting, and Enrollment Services/Registration & Records
- Forging partnerships with business, industry, educational institutions, and government agencies.
- Scheduling veteran specific events

The veteran's office space provides a friendly environment for our active duty military and veterans to study, relax, socialize, converse, or just gain a moment of quiet reflection. Whether you were just discharged from active duty, currently on active duty, in the National Guard or Reserves, or a spouse or dependent of a disabled veteran, we will help you with your transition and academic goals. The Office of Veteran Affairs is located in the University Center in room 2174.

Certification of Educational Benefits

The administration of veteran's education benefits programs and enrollment certifications are handled by Veteran Affairs Certifying Officials located in the Enrollment Services Office. Our goal is to effectively assist veterans, or the dependents of veterans, with the certification process. Students who are eligible for VA educational benefits are able to apply their respective benefits toward their educational endeavors at UM-Dearborn with assistance from this office.

All students who are eligible for, and elect to receive education and training benefits while attending UM-Dearborn, may address inquiries for information to the:

Enrollment Services/Registration & Records
4901 Evergreen Road
1169 University Center
Dearborn, MI 48128
313-583-6500 or umd-va@umd.umich.edu.

Additional information regarding veteran services, certification, and the policies and procedures for certification of benefits can be found on our website at: umd.umich.edu/rr_va (http://www.umd.umich.edu/rr_va). Questions regarding the eligibility of a veteran or dependent can be answered by calling the St. Louis Regional Office at 1-888-GIBILL1 (442-4551) or connecting to the Department of Veteran Affairs website at: benefits.va.gov/gibill (http://www.benefits.va.gov/gibill).

Special Programs

Officer Education Programs

Students at UM-Dearborn may apply for admission to the two-year and four-year programs of Army or Air Force officer training. These programs include some scholarship options and may lead to a commission either in the Army or the Air Force.
College of Arts, Sciences, and Letters

Arts, Sciences, and Letters the Liberal Arts College at the University of Michigan-Dearborn

The College of Arts, Sciences, and Letters (CASL) is the liberal arts college at UM-Dearborn. Following the long-standing University of Michigan tradition of a sound liberal arts education, the College emphasizes the breadth and depth of learning and creative thinking. The programs of the College are designed to prepare students who can communicate clearly, reason and make critical judgments, distinguish facts from values, and understand their own and others' cultural and artistic heritage. Individuals who are educated in this manner will be able to adapt successfully not only to their first jobs but also to a rapidly changing world. With a sound liberal arts education, our students are equipped to provide leadership, direction, and vision.

With a full-time faculty of over 150, the College offers 37 liberal arts majors and over 1000 courses to its 3500+ undergraduates, who represent nearly half of the total student enrollment at UM-Dearborn. In addition, the College provides the liberal arts foundation for all degree programs on campus and is the academic unit on campus that reflects in itself the diversity essential to and inherent in a modern comprehensive university. The College is the largest academic unit at UM-Dearborn and the third largest of all academic units on the three campuses of the University of Michigan.

History of the College

From the beginning of the Dearborn Center of the University of Michigan, as it was first called, there was "an intent to provide a full schedule of daytime courses in Engineering, Business Administration, and the Liberal Arts and Sciences" (Report by the University's Dean of Statewide Education, January 1957). On January 10, 1958, the Regents approved the creation of the Division of Literature, Science, and the Arts (LSA) as an official academic division. Full programs in the liberal arts began in Fall 1960; and in Fall 1965, the LSA Division became the largest academic unit on the Dearborn Campus, a distinction which continues to the present.

When it became a four-year undergraduate institution in 1971, the Campus was designated the University of Michigan-Dearborn (UM-Dearborn). Two years later, the Regents approved a new set of UM-Dearborn Bylaws, in which the Department of Education became a separate division, and the LSA Division became the College of Arts, Sciences, and Letters (CASL), administered by a Dean. Since then, CASL has evolved to comprise six multidisciplinary departments: Behavioral Sciences; Mathematics and Statistics; Language, Culture and Communication (LCC); Literature, Philosophy and the Arts (LPA); Natural Sciences; and Social Sciences. CASL is also home to thirteen college wide programs: African and American African Studies (AAAS); American Studies; Arab American Studies (AAST); Business Studies as a Second Major (BST); Criminology and Criminal Justice Studies (CRJ); Individual Program of Study; Law and Society; Liberal Studies (LIBS); Medieval & Renaissance Studies; Middle East Studies (MEST); Religious Studies (RELS); Science and Technology Studies (STS); and Women and Gender Studies (WGST).
Mission of the College

As was true in Paris and Bologna in the fourteenth century and as is true in Cambridge, Ann Arbor, and Dearborn in the twenty-first, liberal arts colleges are the sine qua non of universities. The pre-eminence of the College of Literature, Science, and the Arts at Ann Arbor is mirrored in the status of the College of Arts, Sciences, and Letters at Dearborn. The reason for this preeminence of liberal arts colleges is not difficult to ascertain. Together, they share an ideal, a goal: the cultivation of students' intellectual abilities, the refining of their sensibilities, and the enlargement and deepening of their awareness and knowledge.

CASL is the intellectual core of the campus. In the College, a distinguished faculty of teacher-scholars aims to cultivate the intellectual abilities of a diverse and talented student body and to enlarge, refine, and deepen their awareness and knowledge. Through traditional degrees and such distinctive programs as cooperative education, undergraduate research and interdisciplinary honors, the College emphasizes both the practical and the intellectual side of the liberal arts. In collaboration with the professional schools, it prepares students for the professions while helping them toward an understanding of human values and ethics. In partnership with the broader academic community, its faculty contribute significantly to the creation, application, and dissemination of knowledge. In addition, it provides significant service to the University and the wider community.

In mathematics and the natural sciences, emphasis is placed on rational, analytical, conceptual thinking and on mastery of precise methods of inquiry, especially experimentation, that produces results that may be replicated.

In the humanities, methodology is equally important, but it is less exclusively rational, because the study of art, literature, and music depends on the manner — partly emotional, partly imaginative — in which these are experienced.

The social and behavioral sciences offer a political, social, economic, psychological, and cultural storehouse from which students can draw in order to understand the past, cope with the present, and design the future.

In CASL, emphasis is not placed exclusively on specific preparation for a narrow career track, but rather on providing a broad-based liberal arts background which offers an ethical and moral foundation from which graduates may grow. Basic core knowledge will aid graduates in their career choices, but facts in many occupations may have a life of less than a decade. By contrast, values endure for a lifetime.

The reason for this preeminence of liberal arts colleges is not difficult to ascertain. Together, they share an ideal, a goal: the cultivation of students' intellectual abilities, the refining of their sensibilities, and the enlargement and deepening of their awareness and knowledge.

Organization of the College

Among the three liberal arts colleges on the University of Michigan campuses (Ann Arbor, Dearborn and Flint), our College stands out because it is organized in a unique manner. Instead of being fragmented into many traditional single-discipline departments, the College is mainly organized into six multidisciplinary departments: Behavioral Sciences; Mathematics and Statistics; Language, Culture and Communication; Literature, Philosophy, and the Arts; Natural Sciences; and Social Sciences.

The Behavioral Sciences Department houses and offers degree programs in three disciplines: anthropology, psychology, and sociology. The Department also offers an interdisciplinary degree program in behavioral sciences and a graduate program in Health Psychology. The office of the Behavioral Sciences Department is located in Room 4012, CB.

The Language, Culture and Communication (LCC) Department houses six disciplines: Comparative Literature, Composition and Rhetoric, Journalism and Screen Studies, Linguistics, Modern and Classical Languages (including Arabic, French, German and Spanish), and Public Communication and Culture Studies (including Speech). It offers degree programs in French Studies, Communication, and Hispanic Studies. It also offers an interdisciplinary degree in International Studies. In addition, the Department offers minors in Arabic Studies, Comparative Literature, Film Studies, German, Global Cultures, and Linguistics. To support its programs in Modern languages, the Department houses the Kochoff Foreign Language Media Laboratory (3065 CB) with extensive resources for language learning such as audio and video course materials, foreign language writing assistant programs, and foreign language TV programs via satellite. To support its programs in Communications, the department houses a TV studio, an audio lab, and video editing facilities with state-of-the-art software, as well as a dedicated computer classroom (3034 CB) with 24 workstations. The office of the Language, Culture and Communication department is located in Room 3014, CB.

The Literature, Philosophy, and the Arts Department (LPA) houses degree programs in three disciplines: art history, English literature, and philosophy. It offers an interdisciplinary degree program in humanities, a minor in medieval and renaissance studies, as well as courses in applied art, applied music, and music history. The Literature, Philosophy, and the Arts Visual Resources and Music Collections (VRMC) supports the instructional needs of the department, especially art history, applied art (studio art), and English literature. The collection contains over 95,000 analog slides, 1500 compact discs and phonograph records, 200 videocassettes and other instructional materials. Digital images from the VRMC collection are available from the Image Collections supported and maintained by Digital Library Platform Service (DLPS) (https://www.lib.umich.edu/digital-library-platform-services-dlps). The office of the Literature, Philosophy, and the Arts Department is located in Room 3011, CB.

The Mathematics and Statistics Department offers a degree programs in the disciplines of applied statistics and mathematics, with an emphasis on either pure or applied mathematics. In addition, the Department offers minors in Applied Statistics, Computer and Computational Mathematics, and Mathematics. The Mathematics Placement Exam and the Mathematics Learning Center are both administered by the Department. The office of the Mathematics and Statistics Department is located in Room 2014 CB.

The Natural Sciences Department houses and offers degree programs in three disciplines: biological sciences, chemistry, and physics. The Department also offers interdisciplinary degree programs in biochemistry, chemistry instruction, geological sciences, environmental science, environmental studies, integrated science, and microbiology; geology and astronomy are available as minors. Also available is the Geospatial Analysis and Mapping (GAM) certificate program. The Science Learning Center, the greenhouse, and the observatory are administered by the Department. The office of the Natural Sciences Department is located in Room 114, Science Faculty Center .

The Social Sciences Department houses and offers degree programs in Economics, Geography, History, Political Science, Social Studies and Urban and Regional Studies, as well as graduate degrees in Public
Administration and a minor in Geography. The office of the Social Sciences Department is located in Room 2140 Social Sciences Building.

The College supports several interdepartmental programs, some administered directly by the College and some administered by departments. These include degree programs in African African American Studies, American Studies, Criminology and Criminal Justice Studies, Liberal Studies, and Women’s and Gender Studies, and minors in African and African American Studies, Law and Society, Leadership and Communication in Organizations, Medieval/Renaissance Studies, Organizational Change in a Global Environment, Religious Studies, Science and Technology Studies, Social Science Research Methodology, and Society and Technological Change. The College also supports the Honors Program, coursework in Arab and Arab American Studies, a program for study in Japan, and the Cooperative Education Program.

**Degrees Offered**

Students may obtain a Bachelor of Arts (AB) or Bachelor of Science (BS), from CASL.

A liberal arts degree program affords a student both breadth and depth of learning. The course requirements for a degree may be divided into types: courses that give a broad, general education, those that provide depth in a specialization, and those that offer the tools needed for success in college and life.

**Dearborn Discovery Core (DDC) and Foreign Language**

Students admitted to the College follow the Dearborn Discovery Core (DDC) curriculum to meet their general education requirements (see General Information Section). Students meeting MTA should consult a CASL advisor; call 313-593-5293 for more information and to see if a tester is available. A student wishing to waive the foreign language requirement must officially submit a request in writing via a petition form. Please note that when the requirement is waived, or language proficiency is demonstrated by exam, credit will not be awarded for courses not taken.

**Foreign Language (8 hrs)**

All BA and BS students are required to take a two-course sequence in one language.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARBC 101 ARBC 102</td>
<td>Beginning Arabic I and Beginning Arabic II</td>
<td>8</td>
</tr>
<tr>
<td>FREN 101 FREN 102</td>
<td>Beginning French I and Beginning French II</td>
<td>8</td>
</tr>
<tr>
<td>GER 101 GER 102</td>
<td>Beginning German I and Beginning German II</td>
<td>8</td>
</tr>
<tr>
<td>LAT 101 LAT 102</td>
<td>Beginning Latin I and Beginning Latin II</td>
<td>8</td>
</tr>
<tr>
<td>MCL 111 MCL 112</td>
<td>Armenian I and Armenian II</td>
<td>8</td>
</tr>
<tr>
<td>MCL 105 MCL 106</td>
<td>Beginning Ancient Greek I and Beginning Ancient Greek II</td>
<td>8</td>
</tr>
<tr>
<td>SPAN 101 SPAN 102</td>
<td>Beginning Spanish I and Beginning Spanish II</td>
<td>8</td>
</tr>
</tbody>
</table>

The foreign language distribution requirement can be met by:

- Successfully completing a two-semester beginning language sequence at UM-Dearborn, or
- Transferring the equivalent of 8 semester hours of a beginning language sequence from another college or university, or
- Successfully completing a 3- or 4-semester hour foreign language course (this course cannot be taught in English) at the 102 level or higher, or
- Having completed at least 3 years (in the same language) of foreign language in high school with a grade of C or better in the final course, or
- Having completed the equivalent of a high school diploma at a school that used a language other than English for instruction. (Appropriate documentation attesting to the language of instruction and graduation from the high school program is necessary, and official English translations of foreign transcripts must be provided), or
- Passing an oral and written proficiency exam.

**Majors**

**What is a Major?**

A college degree experience includes depth as well as breadth. Each student in an AB (Bachelor of Arts) or BS (Bachelor of Science) degree program must choose a field in which to specialize, which is called a major.* A major is a program of specialized study that normally consists of a minimum of 30 credit hours of work at the upper-level (courses numbered 300 through 499 and 3000-4999) taken mainly during the student’s final two years. A major allows a student to develop independence and discrimination of thought and judgment and to learn to appreciate, assimilate, and apply a coherent body of knowledge.

The College offers the following majors that normally lead to the degree AB (Bachelor of Arts) or BS (Bachelor of Science) listed.

<table>
<thead>
<tr>
<th>Title</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>African and African American Studies</td>
<td>AB</td>
</tr>
<tr>
<td>American Studies</td>
<td>AB</td>
</tr>
<tr>
<td>Applied Statistics</td>
<td>AB, BS</td>
</tr>
<tr>
<td>Anthropology</td>
<td>AB</td>
</tr>
<tr>
<td>Art History</td>
<td>AB</td>
</tr>
<tr>
<td>Behavioral and Biological Sciences</td>
<td>AB</td>
</tr>
<tr>
<td>Behavioral Sciences</td>
<td>AB</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>BS</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>BS</td>
</tr>
<tr>
<td>Business Studies (2nd Major ONLY)</td>
<td>BS</td>
</tr>
<tr>
<td>Chemistry (ACS Certified)</td>
<td>BS</td>
</tr>
<tr>
<td>Chemistry/Instructional</td>
<td>BS</td>
</tr>
</tbody>
</table>
Communication
Criminology and Criminal Justice
Earth Science
Economics
English
Environmental Science
Environmental Studies
French Studies
Hispanic Studies
History
Humanities
Individual Program of Study
International Studies
Journalism and Screen Studies
Liberal Studies
Mathematics
Microbiology
Philosophy
Physics
Political Science
Psychology
Social Studies
Sociology
Urban and Regional Studies
Women's and Gender Studies

1. Liberal Studies offers the student an opportunity to design an AB or BS degree program from three 12 or 15 credit hour fields of study called Concentrations.

Major Requirements

Certain introductory courses, designated prerequisites, are designed to give students the knowledge and skills needed in the advanced courses. Undecided students will find these courses helpful in making a decision about majoring in the field.

A program of study in a major should be planned in consultation with the faculty program advisor. The advisor must approve the content of the major and can help the student achieve a sound and harmonious program.

The following rules apply to most majors:

1. Generally in most single discipline majors, at least 30 upper-level credit hours are required. At least 24 credit hours must be taken in the field of the major and at least 6 credit hours of cognate courses are required. A cognate course is in a related field.
2. The courses used to fulfill the 30 or more upper-level credit hours must be numbered 300-499 or 3000-4999. Note that courses taken at community colleges and lower level courses taken at other four-year institutions may not be used to fulfill this requirement.
3. Courses taken as major prerequisites may not be counted in the major.
4. A minimum grade point average (GPA) of 2.00 must be achieved in both major courses and cognate courses.
5. At the minimum, students must complete between 12 and 15 (or more) of the 30 credit hours at UM-Dearborn. Students transferring upper-level credits from other institutions should check with their major advisor for specifics of this residency requirement.
6. Students who have been off campus for one full year must complete the degree requirements in effect when they return.
7. Courses used in the major cannot dually be used in a minor.
8. Courses used in the major cannot be taken P/F (Pass/Fail)

Double Major (Optional)

Students who want a double major must meet all requirements in two fields and must officially declare, and be approved for, both majors, in the CASL Office of Advising and Student Records, Room 1039 CB. Courses that satisfy major and/or cognate requirements for more than one field can be applied simultaneously to both fields. The business study major may only be a second major.

Concentrations

Instead of a traditional major, students in the Liberal Studies degree program elect three concentrations which can be in single disciplinary areas or in multi-disciplinary areas. A single disciplinary concentration requires 12 credit hours at the 300 level or above. Multi-disciplinary concentrations require 15 credit hours or more. At least two concentrations must be within CASL. One concentration may be in approved concentrations from the College of Business, CIS, or College of Education, Health and Human Services. Students interested in these programs should contact CASL Advising and Records in 1039 CB or call 313-593-5293 for additional information.

Recognition of A Minor (Optional)

A student in an AB or BS degree program (other than Liberal Studies) may apply for recognition of a minor. A student may declare a minor (completed or not) by filing the appropriate form at the CASL Office of Advising and Student Records. A final audit will be conducted at the time of graduation. Any posted minor that has not been successfully completed will be deleted from the student’s transcript.

A minor generally consists of a minimum of 12 or 15 credit hours of upper-level (300-499 and 3000-4999) coursework in a particular field of study. A minimum grade point average (GPA) of 2.00 is required in the courses applied to a minor. For minors offered by CASL, the grades (including E’s) in all upper-level courses in the discipline of the minor will be reflected in the minor GPA. Courses elected pass/fail (P/F) cannot be used in a minor. Courses used in a minor cannot dually be used in a major.

A single disciplinary minor requires a minimum of 12 credit hours of upper-level coursework. No more than three credit hours of transfer credit, field placements, internships, seminars, S/E graded courses, and independent study/research may be applied to any 12 credit hour minor.

Note that a few interdisciplinary majors do not offer minors. A minor in a multidisciplinary area or in multi-disciplinary areas. A single disciplinary concentration requires 12 credit hours at the 300 level or above. Multi-disciplinary concentrations require 15 credit hours or more. At least two concentrations must be within CASL. One concentration may be in approved concentrations from the College of Business, CIS, or College of Education, Health and Human Services. Students interested in these programs should contact CASL Advising and Records in 1039 CB or call 313-593-5293 for additional information.

An interdisciplinary minor consists of a minimum of 15 credit hours of upper-level coursework. Interdisciplinary minors are available in African and African American Studies; Arab American Studies; Communication; Community Change; Environmental Studies; Film Studies; Geography; Global Cultures; Journalism and Screen Studies; Law and Society; Leadership and Communication in Organizations; Medieval and Renaissance Studies; Organizational Change in a Global Environment;
Religious Studies; Science and Technology Studies; Social Science Research Methodology; Society and Technological Change; Urban and Regional Studies and Women’s and Gender Studies. There is no minor in International Studies, American Studies, Behavioral and Biological Science, Behavioral Sciences, Liberal Studies, Chemistry/Instructional Track, or Social Studies.

In addition, there are several non-CASL minors available—Accounting, Computer and Information Science (CIS), CIS-Game Design Option, Digital Marketing, Finance, Financial Planning, Health Policy Studies, Human Resources, Information Technology Management, Management, Marketing, Public Health, Social Work, and Supply Chain Management. The GPA for the CIS minor is based on CIS 150, CIS 200, CIS 275, and all upper-level CIS coursework. The GPA for the Business minors is based on all courses taken for the minor in the College of Business. Students who are not in the College of Business cannot elect or transfer more than 30 credit hours in upper level courses offered by the College of Business. A maximum of six credit hours of transfer credit, field placement, internships, seminars, S/E-graded courses, and independent study/research may be applied to any interdisciplinary or non-CASL minor.

Other Requirements

Total Credit Hours
A minimum of 120 credit hours with an overall average of C (2.00) or better is required for graduation.

Upper-Level Coursework
A minimum of 48 hours of upper-level (courses numbered 300-499 and 3000-4999) coursework must be completed by each student.

Undergraduate Residency
To qualify for an undergraduate degree, a student must complete through instruction from the University of Michigan-Dearborn faculty, a minimum of 30 of the last 36 credits presented for the degree. Restrictions on maximum transfer credit hours must be observed. Any exceptions to this policy must be approved by petition to the Academic Standards Committee of the student’s college in advance of coursework taken.

Credit Hour Limitation
There are maximum credit hours in any one discipline which may be applied toward the 120 credit hours needed for graduation. See major requirements for specific rules.

Degree Requirements: Summary

Bachelor of Arts (AB)
To be recommended for the AB degree a student must have satisfied the DDC and Foreign Language requirements, residency, credit hours, grade point average, and upper-level work. For all programs except Liberal Studies, the student must also complete the requirements for the major. The AB degree in Liberal Studies does not involve a major, but three fields of study called Concentrations. Minors are not available in Liberal Studies.

Bachelors of Science (BS)
To be recommended for the BS degree a student must have satisfied all the requirements for the AB degree and must have majored in one of the following programs: biochemistry, biological sciences, chemistry (ACS certified), chemistry/instructional, geological sciences, environmental science, microbiology, or physics. Alternatively, a student who earns 60 or more credit hours (at least 20 credit hours of which are in upper level courses 300 or above) in mathematics (including CCM and CIS courses 150 and above, and statistics (STAT) courses) and/or the physical and biological sciences may, upon petition to the CASL Office of Advising and Student Records, Room 1039 CB, be granted the BS degree.

Other Degree Options

Second Bachelor Degree
A student who has already earned a bachelor degree from UM-Dearborn or any other accredited collegiate institution may apply to pursue a second bachelor degree through the Admissions Office (1145 University Center). If accepted, the student must complete at UM-Dearborn at least an additional 30 credit hours (regardless of the number of credit hours completed for the first degree), if the first degree was earned at UM-Dearborn; or 45 credit hours, if the first degree was earned elsewhere; and must satisfy all the requirements for the second degree program. The GPA for the second degree will be based on the cumulative academic records of all courses taken at UM-Dearborn. For further information, contact the CASL Office of Advising and Student Records, 1039 CB.

Dual Degrees
Students may apply for two or more degrees either within CASL or in CASL and another unit at UM-Dearborn. To earn both degrees, students must meet the degree requirements for each degree. Students should expect to elect at least 30 more credits to earn both degrees. Students are advised to contact a representative from each program to learn the specific requirements that must be met.

Some degrees, such as the degrees in Engineering Mathematics or CIS Mathematics, are only available as concurrent degrees and must be paired with a primary degree in either engineering or CIS. Students interested in dual degrees should see an advisor.

Joint Degrees
Students can get an early start in the graduate degree programs of the University’s Ann Arbor Campus School of Natural Resources and still be awarded a liberal arts degree from UM-Dearborn. Students must have a GPA of at least 3.00 and have completed the requirements for graduation and earned a minimum of 45 of the required 105 credit hours in residence at UM-Dearborn. A maximum of 15 credit hours of appropriate required courses in the first two years of the graduate/professional degree program may count toward both the bachelor and the graduate degrees. For more information, contact the CASL Office of Advising and Student Records, Room 1039 CB.

Requirements for Transfer Students

Admission Requirements
A student who applies to UM-Dearborn with 24 or more semester hours of transferable credit (excluding Advanced Placement (AP) and International Baccalaureate (IB) credit) is considered a transfer student. Students with fewer hours of college credit are considered freshmen for admission purposes. For freshman admission requirements, see the General Information section of this Undergraduate Catalog.

Admission to the College as a transfer student is based on the quality and content of both the high school and the college academic records. Standards of evaluation are designed to ensure that each student admitted has the intellectual capacity and the preparation to pursue advanced undergraduate work successfully. Admission criteria are not
based on race, sex, color, religion, national origin or ancestry, age, marital status, handicap or veteran status.

The process of determining equivalent UM-Dearborn course and appropriate credit hours for a course taken at another institution is called credit certification. A student who believes that a course was not certified correctly should immediately contact the CASL Office of Advising and Student Records, Room 1039 CB. Any request for re-evaluation of credit must be petitioned in writing within six months.

Courses will not be transferable if completed with a grade lower than C. The College reserves the right to place students on registration hold if they have not provided an official transcript of their studies taken at another institution.

General Requirements
Students entering the College with junior status will be expected to have completed most of the Dearborn Discovery Core requirements and, if applicable, major prerequisites. Deficiencies in either of these areas must be made up with all deliberate speed. Check with your major advisor for limits on the number of transfer credits that will be accepted toward degree requirements. Courses taken at other four-year institutions may be used in some cases to satisfy upper-level requirements in the major. Courses transferring from community colleges or other two-year institutions will be considered lower level or general elective credit only. They will not be considered upper level in the College of Arts, Sciences, and Letters.

Reminder: All students are required to declare a major when they reach 60 credit hours. Students transferring 62 credit hours or more are not required to declare a major before admission, but must do so during their first term at UM-Dearborn.

Residency Requirements
Transfer students must complete at UM-Dearborn the last 30 to 58 credit hours before graduation. The precise number depends on the previously attended institution(s) and the maximum number of transferable credits. Institutions are classified into three categories: (2Y) includes all two-year institutions, (4Y) includes all four-year institutions other than the schools and colleges of the University of Michigan, (UM) includes only the schools and colleges of the University of Michigan. The table below gives the maximum transferable credits and minimum residency requirements.

Notes: The transferable credit hours listed below are maximums. The exact number of transferable hours is determined upon official evaluation and may vary depending on the students program.

Advanced Placement, International Baccalaureate and A level coursework is treated the same as coursework from a four-year institution.

Normally a student must complete his/her last 36 semester hours at UM-Dearborn. Under certain circumstances, if approved by petition, a senior may elect the last 30 credit hours of coursework at another UM campus or six of the last 36 credit hours at an institution other than the University of Michigan.

<table>
<thead>
<tr>
<th>Previously Attended Institutions</th>
<th>Maximum Transferable Credit</th>
<th>UM-Dearborn Residency Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Y (only)</td>
<td>62</td>
<td>58</td>
</tr>
<tr>
<td>4Y (only)</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>2Y &amp; 4Y</td>
<td>75 (62 from 2Y, 75 total)</td>
<td>45</td>
</tr>
<tr>
<td>UM (only)</td>
<td>90</td>
<td>30</td>
</tr>
</tbody>
</table>

(not necessarily in this sequence)

Other Programs
Graduate Programs
The College offers a Master of Public Administration, a Master of Science in Applied and Computational Mathematics, a Master of Science in Criminology and Criminal Justice, a Master of Science in Environmental Science, and a Master of Science in Psychology with tracks in Health Psychology and Clinical Health Psychology. See the UM-Dearborn Graduate Catalog for admission requirements, complete program descriptions and a listing of graduate courses.

Certificates
The College offers six certificates: Arab American Studies (AAST), Geospatial Analysis and Mapping (GAM), LGBTQ Studies, Middle East Studies (MEST), Public Relations (PR), and Writing (WRIT).

Consult the program description in this Catalog for additional information and requirements.

Majors
• African and African American Studies (p. 73)
• American Studies (p. 75)
• Anthropology (p. 75)
• Art History (p. 79)
• Behavioral and Biological Sciences (p. 83)
• Behavioral Sciences (p. 81)
• Biochemistry (p. 84)
• Biological Sciences (p. 85)
• Chemistry (ACS Certified) (p. 89)
• Chemistry (Instructional track) (p. 90)
• Communication (p. 92)
• C (p. 95) Criminology and Criminal Justice (p. 95)
• Economics (p. 97)
• English (p. 98)
• Environmental Science (p. 102)
• Environmental Studies (p. 104)
• General Studies (p. 108)
• Geological Sciences (p. 108)
• Hispanic Studies (p. 112)
• History (p. 113)
• Humanities (p. 115)
• International Studies (p. 118)
• Liberal Studies (p. 126)
• Mathematics (p. 127)
• Microbiology (p. 129)
• Philosophy (p. 132)
• Physics (p. 133)
• Political Science (p. 135)
• Psychology (p. 137)
• Social Studies (p. 141)
• Sociology (p. 142)
• Urban and Regional Studies (p. 144)
• Women's and Gender Studies (p. 146)

Minor
• African and African American Studies (p. 73)
• Anthropology (p. 75)
• Applied Statistics (p. 76)
• Arab American Studies (p. 78)
• Arabic Studies (p. 78)
• Art History (p. 79)
• Astronomy (p. 81)
• Biochemistry (p. 84)
• Biological Sciences (p. 85)
• Chemistry (ACS Certified) (p. 89)
• Communication (p. 92)
• Community Change (p. 94)
• Comparative Literature (p. 94)
• Computer and Computational Mathematics (p. 94)
• Criminology and Criminal Justice (p. 95)
• Economics (p. 97)
• English (p. 98)
• Environmental Science (p. 102)
• Environmental Studies (p. 104)
• Film Studies (p. 106)
• French/French Studies (p. 107)
• Geological Sciences (p. 108)
• Geology (p. 110)
• German (p. 110)
• Global Cultures (p. 110)
• Hispanic Studies (p. 112)
• History (p. 113)
• Humanities (p. 115)
• Law and Society (p. 124)
• Leadership & Communication in Organizations (p. 125)
• Linguistics (p. 126)
• Medieval and Renaissance Studies (p. 129)
• Microbiology (p. 129)
• Organizational Change in a Global Environment (p. 132)
• Philosophy (p. 132)
• Physics (p. 133)
• Political Science (p. 135)
• Psychology (p. 137)
• Religious Studies (p. 139)
• Science and Technology Studies (p. 140)
• Social Science Research Methodology (p. 140)
• Society and Technological Change (p. 142)
• Sociology (p. 142)
• Urban and Regional Studies (p. 144)

Certificates
• Arab American Studies (p. 78)
• GIS (p. 108) Geospatial Analysis and Mapping (http://catalog.umd.umich.edu/undergraduate/college-arts-sciences-letters/geospatial-analysis-mapping)
• LGBTQ Studies (http://catalog.umd.ucb.edu/undergraduate/college-arts-sciences-letters/lgbtq-studies)
• Middle East Studies (p. 131)
• Public Relations (p. 139)
• Writing (p. 148)

Administration
Martin J. Hershock, PhD, Dean
Michael Lachance, PhD, Associate Dean
Gabriella M. Scarlatta, PhD, Associate Dean
Nada Bachir, BA, Administrative Specialist Intermediate
Sharie Beard, CWP, Administrative Project Coordinator
Susan Gedert, AB, Communications Editor Alumni Affiliate Coordinator
Rita Gordon, MBA, Director of Administrative Services
Mary Jones, Research Coordinator
Ellen Judge-Gonzalez, MA, Director, Student Outreach and Academic Resources (SOAR Program)
Sheilah Larnhart, BA, CWP, Administrative Assistant
Patricia Martin, MPA, Cooperative Program Manager
Lisa Morrow, MBA, Financial Analyst
Rebecca Richardson, SOAR

Chairs and Directors
David Chatkoff, Director, Psychology
Natalia Czap, Director, Public Policy and Public Administration
Scott DeGregorio, Director, Honors Program
Ivy Forsythe-Brown, Director, African American and African Studies and Center for Ethnic and Religious Studies
Jorge Gonzalez del Pozo, Chair, Language, Culture, and Communication
Angela Krebs, Director, Center for Mathematics and Education
Lisa Martin, Director, Women's and Gender Studies
Joan Remski, Director, Applied and Computational Mathematics
Lara Rusch, Director, Urban and Regional Studies Program
Ara Sanjian, Director, Center for Armenian Studies
Donald Shelton, Director, Criminology and Criminal Justice
Jonathan Smith, Chair, Behavioral Studies
Deborah Smith-Pollard, Chair, Literature, Philosophy and the Arts
David Susko, Director, Environmental Interpretative Center
John Thomas, Chair, Natural Science
Dale Thomson, Chair, Natural Science
Jamie Wraight, Program Advisor, Liberal Studies
Jennifer Zhao, Chair, Mathematics and Statistics

Professors Emeriti
Akiyama, Michael, PhD, Professor Emeritus of Psychology
Anderson, Donald F., PhD, Professor Emeritus of Political Science
Axsom, Richard, PhD, Professor Emeritus of Art History
Berkove, Lawrence, PhD, Professor Emeritus of English Language and Literature
Bjorn, Lars, PhD, Professor Emeritus of Sociology
Bogin, Barry A., PhD, Professor Emeritus of Anthropology
Brown, James W., PhD, Professor Emeritus of Mathematics
Clark, Elaine G., PhD, Professor Emerita of History
Constant, John G., PhD, Associate Professor Emeritus of Music
Crowell, Elizabeth, PhD, Associate Professor Emerita of Economics
Dahlke, Richard M., PhD, Professor Emeritus of Mathematics and Mathematics Education
DeCamp, Mark, PhD, Associate Professor Emeritus of Chemistry
Emery, Allan, PhD, Professor Emeritus of Chemistry
Fakler, Robert, PhD, Professor Emeritus of Mathematics
Fink, John F., PhD, Professor Emeritus of Mathematics
Flax, Neil M., PhD, Associate Professor Emeritus of Comparative Literature and German
Gardner, Gerald, PhD, Professor Emeritus of Psychology
Garland, Frank, PhD, Associate Professor Emeritus of Chemistry
Gillespie, John, PhD, Professor Emeritus of Mathematics and Statistics
Grewe, Eugene, PhD, Professor Emeritus of Rhetoric and English Composition
Gruber, James, PhD, Professor Emeritus of Sociology
Heady, Judith, PhD, Associate Professor Emerita of Biology
Higgs, Elton, PhD, Professor Emeritus of English Language and Literature
House, Gloria, PhD, Professor Emerita of African and African American Studies and Humanities
Höft, Margret, PhD, Professor Emerita of Mathematics
James, David A., PhD, Professor Emeritus of Mathematics
Kamachi, Noriko, PhD, Professor Emerita of History
Klein, Bernard W., PhD, Professor Emeritus of Political Science
Kotre, John, PhD, Professor Emeritus of Psychology
Lee, Dorothy A., PhD, Professor Emerita of Comparative Literature and English
Lempert, Lora Bex, PhD, Professor Emerita of Sociology
Lyjak, Robert, PhD, Professor Emeritus of Mathematics and Computer Science
Milles, Stephen, PhD, Associate Professor Emeritus of Mathematics and Mathematics Education
Moerman, Daniel, PhD, Professor Emeritus of Anthropology
Morash, Ronald P., PhD, Professor Emeritus of Mathematics
Mostafapour, Kazem, PhD, Associate Professor Emeritus of Biochemistry and Chemistry
Nadasen, Arunajallam, PhD, Professor Emeritus of Physics
Norman, Richard, PhD, Associate Professor Emeritus of Biology
Otto, Charlotte, PhD, Professor Emerita of Chemistry
Papazian, Dennis, PhD, Professor Emeritus of History
Papp, F.J., PhD, Professor Emeritus of Mathematics
Pearson, Sheryl S., PhD, Professor Emerita of English Literature
Pebworth, Ted-Larry, PhD, Professor Emeritus of English Language and Literature
Perlove, Shelley K., PhD, Professor Emerita of Art History
Peter, Philip H., PhD, Associate Professor Emeritus of Music
Proctor, Donald, PhD, Professor Emeritus of History
Radine, Lawrence, PhD, Professor Emeritus of Sociology
Roehl, Richard, PhD, Professor Emeritus of Economics
Rubenstein, Rheta N., PhD, Professor Emerita of Mathematics
Sayles, Edward, PhD, Professor Emeritus of Philosophy
Schaum, Melita, PhD, Professor Emerita of English Literature
Schneider, Michael J., PhD, Professor Emeritus of Biology
Simpson, Robert, PhD, Professor Emeritus of Biology and Environmental Science
Snabb, Thomas, PhD, Associate Professor Emeritus of Mathematics
Spinelli, Emily L., PhD, Professor Emerita of Spanish
Stern, Jeffrey, PhD, Professor Emeritus of Psychology
Summers, Claude, PhD, Professor Emeritus of English Language and Literature
Tai, Julia C., PhD, Professor Emerita of Chemistry
Tentler, Leslie W., PhD, Professor Emerita of History
Thomson, William, PhD, Associate Professor Emeritus of Psychology
Twomey, Michael, PhD, Professor Emeritus of Economics
Verhey, Roger, PhD, Professor Emeritus of Mathematics
Wider, Kathleen, PhD, Professor Emerita of Philosophy
Woodward, Wayne, PhD, Associate Professor Emeritus of Communication

Faculty

Department of Behavioral Science
Aronson, Pamela, PhD, University of Minnesota, Professor of Sociology
Banner, Francine, JD, PhD, Arizona State University, Associate Professor of Sociology
Barak, Maya P., PhD, American University, Assistant Professor of Criminal Justice
Beauchesne, Patrick, PhD, University of California Berkeley, Assistant Professor of Anthropology
Brainer, Amy, PhD, University of Illinois, Assistant Professor of Sociology, Women’s and Gender Studies
Chatkoff, David, PhD, University of Southern Mississippi, Associate Professor of Psychology
Chenoweth, John, PhD, University of California Berkeley, Assistant Professor of Anthropology
Clark-Foos, Arlo, PhD, University of Georgia, Associate Professor of Psychology
Dolins, Francine, PhD, University of Stirling (Scotland), Associate Professor of Psychology
Draus, Paul, PhD, Loyola University, Professor of Sociology
Early, Kevin, PhD, University of Florida, Associate Professor of Sociology, Criminal Justice Studies
Forsythe-Brown, Ivy, PhD, University of Maryland, Associate Professor of Sociology, African and African American Studies
Hymes, Robert W, PhD, Michigan State University, Associate Professor of Psychology
Lacey, Krim, PhD, Wayne State University, Assistant Professor of Sociology, African and African American Studies
Leonard, Michelle, PhD, Wayne State University, Associate Professor of Psychology
Loeb, Roger C., PhD, Cornell University, Professor of Psychology
Martin, Lisa, PhD, University of Michigan, Associate Professor of Health Policy Studies and Women’s and Gender Studies

McAuslan, Pamela, PhD, Wayne State University, Associate Professor of Psychology
McKenna, Brian, PhD, Michigan State University, Associate Professor of Anthropology
Patel, Nehal, JD, PhD, Northwestern University, Associate Professor of Criminal Justice and Sociology
Pecina, Susana, PhD, University of Michigan, Associate Professor of Psychology
Price, Carmel, PhD, University of Tennessee, Assistant Professor of Sociology
Sethuraman, Nitya, PhD, University of California at San Diego, Associate Professor of Psychology
Sheldon, Jane, PhD, University of Michigan, Professor of Psychology
Shelton, Donald, JD, PhD, University of Nevada, Associate Professor of Criminal Justice
Siefert, Caleb, PhD, Adelphi University, Associate Professor of Psychology
Straub, Richard O., PhD, Columbia University, Professor of Psychology
Swift, Dan J., PhD, University of New Hampshire, Associate Professor of Psychology
Waung, Marie, PhD, Ohio State University, Professor of Psychology
Wellman, Rose, PhD, University of Virginia, Assistant Professor of Anthropology
Whitehead, Brenda, PhD, University of Notre Dame, Assistant Professor of Psychology
Wrobel, Nancy, PhD, Wayne State University, Professor of Psychology

Department of Language, Culture and Communication
Calzada-Orihuela, Sofia, PhD, University of Maryland, Lecturer of Spanish
Davis, Daniel, D.Phil., Oxford University, Professor of Linguistics
DeGenaro, William, PhD, University of Arizona, Professor of Composition and Rhetoric
Dika, Rifaat, PhD, Wayne State University, Lecturer of Arabic
Gilmore, H James, MA, University of Iowa, Clinical Professor of Journalism and Screen Studies

González del Pozo, Jorge, PhD, University of Kentucky, Professor of Spanish
Iannarino, Nicholas, PhD, University of Kentucky, Assistant Professor of Communication
Kawtharani, Farah, PhD, McGill University, Assistant Professor of Arabic
Kiska, Timothy, PhD, Wayne State University, Associate Professor of Journalism and Screen Studies
Kraus, Carolyn, PhD, University of Michigan, Professor of Journalism and Screen Studies
Lee, Jamie, PhD, University of Illinois, Associate Professor of Linguistics
Luthra, Rashmi, PhD, University of Wisconsin-Madison, Professor of Communication
MacDonald, Michael Tyler, PhD, University of Wisconsin-Milwaukee, Assistant Professor of Composition and Rhetoric
Mannion, Jerilyn, MA, Bowling Green State University, Lecturer of French
Martinez-Valencia, Francia Eliana, PhD, University of Alabama, Associate Professor of Spanish
Murphy, Troy, PhD, University of Pittsburgh, Associate Professor of Communication
Murray, Margaret, PhD, University of Colorado-Boulder, Assistant Professor of Communication
Petak, Samantha, MA, Bowling Green State University, Lecturer of Spanish
Potvin, Phillip, MFA, Bennington College, Lecturer of Composition and Rhetoric
Proctor, Jennifer, MFA, University of Iowa, Assistant Professor of Journalism and Screen Studies
Pérez, Marissa, MA, University of Michigan, Lecturer of Spanish
Rodríguez-McGill, Carlos, PhD, Ohio State University, Associate Professor of Spanish
Rohan, Elizabeth, PhD, University of Illinois Urbana-Champaign, Professor of Composition and Rhetoric
Scarlatta, Gabriella M., PhD, Wayne State University, Professor of French
Spoiden, Stéphane, PhD, Ohio State University, Professor of French
Vansant, Jacqueline, PhD, University of Texas-Austin, Professor of German
Willard-Traub, Margaret, PhD, University of Michigan, Associate Professor of Composition and Rhetoric

Department of Literature, Philosophy and the Arts
Aijaz, Imran, PhD, University of Auckland (New Zealand), Associate Professor of Philosophy
Basevich, Elvira, PhD, CUNY, Assistant Professor of Philosophy
Baumgarten, Elias, PhD, Northwestern University, Associate Professor of Philosophy
Bond, Erik, PhD, New York University, Associate Professor of English Literature
Erickson, Susan N., PhD, University of Minnesota, Professor of Art History
Finlayson, J. Caitlin., PhD, University of Toronto, Associate Professor of English Literature
Hughes, Paul, PhD, University of Illinois-Chicago, Professor of Philosophy
Jarenski, Michelle, PhD, Loyola University Chicago, Associate Professor of English Literature
Lambert, Julie, MFA, Cranbrook Academy of Art, Lecturer of Art History and Applied Art
Linker, Maureen, PhD, City University of New York, Professor of Philosophy
Little, Daniel E., PhD, Harvard University, Professor of Philosophy
McMillan, Calvin, PhD, University of California, Lecturer of English Literature
Ng, Diana, PhD, University of Michigan, Associate Professor of Art History
Rottner, Nadja, PhD, Columbia University, Associate Professor of Art History
Skrbina, David, PhD, University of Bath, Lecturer of Philosophy
Smith, Jonathan, PhD, Columbia University, William E Stirton Professor of Professor, English Language and Literature, and Behavioral Sciences
Smith Pollard, Deborah, PhD, Michigan State University, Professor of English Literature and Humanities

Department of Mathematics and Statistics
Agarwal, Mahesh, PhD, University of Michigan, Associate Professor of Mathematics
Cengiz-Phillips, Nesrin, PhD, Western Michigan University, Associate Professor of Mathematics Education
Clifford, John H., PhD, Michigan State University, Professor of Mathematics
Fiore, Thomas, PhD, University of Michigan, Associate Professor of Mathematics
Georgieva-Hristova, Yulia, PhD, Texas A M University, Assistant Professor of Mathematics
Jabbusch, Kelly, PhD, University of Washington, Assistant Professor of Mathematics
Kim, Hyejin, PhD, University of Maryland College Park, Assistant Professor of Mathematics
Krebs, Angela, PhD, Michigan State University, Associate Professor of Mathematics Education and Mathematics
Lachance, Michael A., PhD, University of South Florida, Professor of Mathematics
Macany, Montaha, PhD, University of Manchester (England), Lecturer of Mathematics
Massey, Frank J., PhD, University of California-Berkeley, Associate Professor of Mathematics and Computer Science
Phillips, Benjamin, PhD, Western Michigan University, Lecturer of Mathematics
Rathouz, Margaret, PhD, University of California-San Diego, Associate Professor of Mathematics Education
Remski, Joan, PhD, Michigan State University, Professor of Mathematics
Viswanathan, Aditya, PhD, Arizona State University, Assistant Professor of Mathematics and Statistics
Wiggins, Alan, PhD, Texas AM University, Associate Professor of Mathematics
Zeytuncu, Yunus, PhD, Ohio State University, Associate Professor of Mathematics
Zhao, Jennifer, PhD, Indiana University, Professor of Mathematics

Department of Natural Science
Abramyan, John, PhD, University of Queensland (Australia), Assistant Professor of Biology
Al-Qaisi, Sami, PhD, University of Akron, Lecturer of Chemistry
Allen, Angela, MS, Wayne State University, Lecturer of Chemistry
Bandyopadhyay, Krisanu, PhD, National Chemical Lab University of Pune (India), Professor of Chemistry
Bazzi, Ali, PhD, Wayne State University, Professor of Chemistry
Bazzi, Judith, MA, Wayne State University, Lecturer of Chemistry
Benore, Mariée B., PhD, University of Delaware, Professor of Biology and Biochemistry
Bowlin, Melissa, PhD, Princeton University, Associate Professor of Biology
Clarkson, William I., PhD, University of Southhampton (UK), Assistant Professor of Physics and Astronomy
Constantinides, Christos, PhD, University of Cambridge (UK), Assistant Professor of Chemistry
Danielson-Francois, Anne, PhD, University of Arizona, Associate Professor of Biology
Deng, Yiwei, PhD, Swiss Federal Institute of Technology, Associate Professor of Chemistry
Donahue, Craig J., PhD, University of Massachusetts, Associate Professor of Chemistry
Gelderloos, Orin G., PhD, Northwestern University, Professor of Biology and Environmental Studies
Hartshorn, Patricia, MS, Wayne State University, Lecturer of Natural Sciences
Heinicke, Matthew, PhD, Pennsylvania State University, Assistant Professor of Biology
Hetrick, James, PhD, University of Illinois at Urbana-Champaign, Lecturer of Physics
Kondapalli, Kalyan, PhD, Wayne State University, Assistant Professor of Biology
LaCommare, Katherine S., PhD, University of Massachusetts, Lecturer of Biology
Lawson, Daniel, PhD, Michigan State University, Professor of Chemistry
Li, Xiaohua (Shannon), PhD, City University of New York, Assistant Professor of Chemistry
Licata, Nicolas, PhD, University of Michigan, Assistant Professor of Physics
Marincean, Simona, PhD, Michigan State University, Associate Professor of Chemistry
Miller, Donald R., MS, University of Michigan, Lecture of Natural Sciences
Murray, Kent, PhD, University of California-Davis, Professor of Geology
Naik, Vaman M, PhD, University of Michigan, Professor of Physics
Napieralski, Jacob, PhD, Purdue University, Professor of Geology
Nesmith, Judy M., MS, Michigan State University, Lecturer of Biology
Oelkers, Peter M., PhD, Wake Forest University, Associate Professor of Biology
Prentis, Jeffrey J., PhD, University of Michigan, Professor of Physics
Riebesell, John, PhD, University of Chicago, Associate Professor of Biology
Saillant, Jean M., MA, Indiana University, Lecturer of Biology
Smith, Sheila, PhD, University of North Carolina, Associate Professor of Chemistry
Stasser, Jay P., PhD, Oregon Health and Science University, Lecturer of Chemistry and Biochemistry
Stewart, Ogie, PhD, Oakland University, Lecturer of Chemistry
Susko, David, PhD, University of Windsor, Associate Professor of Biology
Thomas, John, PhD, University of Arizona, Professor of Biology
Tiquia-Arashiro, Sonia, PhD, University of Hong Kong, Professor of Biology and Microbiology
Walters, Claudia K., PhD, Michigan State University, Lecturer of Earth and Environment
Wang, Jin, PhD, University of Queensland (Australia), Associate Professor of Physics

Department of Social Sciences
Akers, Joshua, PhD, University of Toronto, Assistant Professor of Geography and Urban and Regional Studies
Amin, Camron M., PhD, University of Chicago, Professor of History
Anderson, R. Warren, PhD, George Mason University, Associate Professor of Economics
Bawardi, Hani, PhD, Wayne State University, Associate Professor of History
Bergeron, Suzanne, PhD, University of Notre Dame, Professor of Women's Studies and Social Sciences
Borquez, Julio, PhD, University of Michigan, Associate Professor of Political Science
Czap, Natalia, PhD, Moscow State University and University of Nebraska-Lincoln, Associate Professor of Economics  
Dye, Keith, PhD, University of Toledo, Assistant Professor of African and African American Studies and History  
Hershock, Martin, PhD, University of Michigan, Professor of History  
Hickey, Georgina, PhD, University of Michigan, Professor of History  
Howell, Sarah (Sally), PhD, University of Michigan, Associate Professor of History  
Koumpias, Antonios, PhD, Georgia State University, Assistant Professor of Economics  
Kursman, Nancy, PhD, Rice University, Lecturer of Political Science  
Lunn, Joe, PhD, University of Wisconsin-Madison, Professor of History  
Luxon, Emily, PhD, University of California College Park, Assistant Professor of Political Science  
Miteza, Ilir, PhD, University of Wisconsin-Milwaukee, Professor of Economics  
Moran, Gerald F., PhD, Rutgers University, Professor of History  
Muller, Anna, PhD, Indiana University, Assistant Professor of History  
Pennock, Pamela, PhD, Ohio State University, Professor of History  
Pietyrkowski, Bruce, PhD, New School for Social Research, Professor of Economics  
Pyrožhenko, Vadym, PhD, Syracuse University, Assistant Professor of Public Administration  
Ruschenberger, Mitchel A., PhD, Catholic University, Professor of Political Science  
Stockton, Ronald R., PhD, Michigan State University, Professor of Political Science  
Sun, Rusi, PhD, Rutgers The State University of New Jersey, Assistant Professor of Political Science  
Thomson, Dale, PhD, University of Maryland-Baltimore County, Associate Professor of Political Science  
Vecchiola, Carla, PhD, University of Michigan, Lecturer of History  
Walters, Claudia, PhD, Michigan State University, Lecturer of Geography  
Wayman, Francis W., PhD, University of Pennsylvania, Professor of Political Science  
Wraight, Jamie, PhD, University of Toledo, Lecturer of History

For complete information on current policies and procedures, contact the Office of Advising and Student Records (https://umdearborn.edu/casl/undergraduate-programs/advising-student-records), Room 1039 CB, 313-593-5293.

**Academic Procedures**

**Declaring a Major**

Students are required to declare a major formally and officially by the time they have earned 60 credit hours. A student who does not comply with this policy is placed on registration hold. As a result, the student will not be allowed to register for the next term until a major has been declared.

**Senior Degree Audits**

A senior audit gives the student a list of requirements remaining to be fulfilled for graduation. During the term in which a student will complete 85 credit hours, a student may request a senior audit from the Office of Advising and Student Records to be prepared. The student will be asked to confirm his or her major before the audit will be completed. When it is done, the student will be notified by email and instructed to schedule an advising appointment, during which the audit will be reviewed. A final audit will be conducted automatically for students who have applied for graduation and are on the Degree Candidate List.

**Dropping and Adding Courses**

Changes in course elections, including dropping or adding a course, and substituting another course for one already elected, may be made during the official “drop/add period.” To make a change in course election, a student may change open courses on line via UM-Dearborn Connect during regular registration periods and during the first two weeks of a full term or the first week of a half-term.

Students also have the option of obtaining an Add/Drop Form from the CASL Office of Advising and Student Records, Room 1039 CB, with faculty signatures, if required, and submit it to the Enrollment Services Counter (1169 UC) by the established Add or Drop deadline. A limited number of classes require faculty permission to add after one week in a full-term and two days in a half-term.

Courses may be selectively (drop one or more course, but stay enrolled in at least one course) dropped through the ninth week of a full term or the fourth week of a half-term, but a W notation will be entered on the transcript. A student may completely withdraw from any semester through the official last day of classes for that particular semester. Consult the Enrollment Services Office (1169 UC; 313-583-6500) for more information about exact dates, signature requirements, and fee assessments.

**ELECTING MORE THAN 18 CREDIT HOURS**

Students must have written permission from the Office of Advising and Student Records to elect more than 18 credit hours a term. Students whose GPA is below 3.00 are not allowed to elect more than the normal maximum of 18 hours.

**Coursework at Other Institutions**

Once admitted and registered at UM-Dearborn, a student may apply to be a guest at another institution. The guest application is available at Enrollment Services, 1169 UC, or online (https://umdearborn.edu/students/registration-records/taking-courses-outside-um-dearborn).
Grading System

**CASL Letter Grades and Quality Points**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.70</td>
</tr>
<tr>
<td>B+</td>
<td>3.40</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.70</td>
</tr>
<tr>
<td>D+</td>
<td>1.40</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>0.70</td>
</tr>
<tr>
<td>E</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Grade Notations

The following notations may appear on a transcript to describe special situations in regard to a course.

**NC No Credit.** No honor points. Not computed in the grade point average. Used only in specially approved courses that are graded A, B, C, No Credit.

**I Incomplete.** No honor points. A student who cannot complete the work of a course before the end of the term must request permission to receive an incomplete grade. A contract form, obtained from the CASL Office of Advising and Student Records, Room 1039 CB, must be discussed with and approved by the instructor before the end of the term. If the work is not completed within either four months, or an earlier deadline specified by the instructor, the grade will be converted to an E. Incompletes may not be completed after graduation. An I notation will remain on the transcript, followed by the letter grade earned. In cases where an I is granted, but no contract is submitted, an IE will appear on the transcript.

**X Absent from Final Examination.** No honor points. An instructor may assign an X if a student has completed all the required coursework except for the final examination. The final exam must be taken within five weeks of the end of the term. If the exam is not completed in the required time frame, an E grade will be recorded. The X notation will remain on the transcript, followed by the letter grade earned. A course with an X mark may not be completed after graduation.

**Y Course extended beyond term end.** No credit. No honor points. Used only for courses that have been specially designed and approved to extend beyond the end of one term. A course with a Y mark may not be completed after graduation. If such a course is not completed, the Y will be converted to an E upon graduation.

**NR Grade Not Reported.** No honor points. Student should consult the Registrar immediately.

**W Official Withdrawal.** No credit. No honor points. Not computed in the grade point average. Students who selectively drop a course or withdraw from all courses for a term prior to the deadline for selective drops and/or withdrawals will receive for these courses the W notation. This notation may not be removed from the transcript.

**S/E.** Used only for specially approved courses. If a student passes, an S (satisfactory) is awarded. It is not computed into the grade point average. If a student does not pass, an E is awarded. If a student stops attending, without officially dropping, a UE is awarded. Both the E and the UE are computed in the GPA as failing grades.

**P/F Pass/Fail Option.** No honor points. A student must elect to take a course under the Pass/Fail option. The instructor reports a letter grade (A through E), except in courses where the notation No Credit is acceptable. Enrollment Services/Registration & Records converts the student’s letter grade according to the following procedure:
1. Grades A through C are posted on a transcript as P (Pass); counts toward residency requirement and credit hours toward graduation.
2. Grades D+ through E are posted on a transcript as F (Fail); no degree credit is earned.
3. A grade of UE is not converted to an F and is computed in the GPA the same as an E.

Neither a P nor an F is computed in the grade point average. This grading option applies only to courses offered by CASL. Students enrolled in degree programs in other units should check the pass/fail regulations in those units. The option is subject to the following conditions:

The pass/fail option is open only to students who are not on academic probation.

Courses taken under the pass/fail option may not be used to fulfill requirements for majors, minors, areas of focus, cognates, and/or teacher certification.

Students in the Honors Program must take all Honors Program requirements for a grade.

Courses taken under the pass/fail option must be specified on the registration form or added as such within the usual add period.

Such courses may be dropped within the usual drop period.

1. Changing from the pass/fail option to a letter grade or vice versa is not permitted after the first two weeks of a full term or after the first week of a half term.
2. A student is limited to, at most, four courses taken under the pass/fail option. Courses specifically designated as "S/E only" are not counted in this limitation.

**UE Unearned Fail.** This grade is assigned to any student who has never attended, or stopped attending class during the semester and did not officially drop. It is computed in the GPA the same as an E.

**VI Visitor-Official Audit.** No credit. No honor points. Not computed into the grade point average. An official audit, or visitor status, allows a student to attend a course but not elect it for credit. The VI notation appears on the transcript. Regular tuition fees are assessed.

**Changing Grades**
The grade that an instructor records on the final grade sheet which appears on the student's subsequent transcript based on the instructor’s official evaluation of all of a student’s performance and work completed by the end of the term is considered final. Recognizing that mistakes can be made, the University of Michigan-Dearborn permits a student to ask an instructor for a review of a grade within a five-week period after the end of the term involved. CASL instructors must complete a Supplementary Grade Report form and submit it to the CASL Office of Advising and Student Records, Room 1039 CB. A grade change after the five week period following the semester the course was taken is not permitted except for extenuating circumstances which requires an approval from the CASL Dean’s Office.

**Term and Cumulative Grade Point Average (GPA)**
The cumulative GPA is determined by dividing the total number of credit hours into the total number of quality points earned. The term GPA is determined by dividing the number of credit hours elected during a term into the number of quality points earned during the same term.

The number of credit hours excludes 1) courses in which a student received an NC; 2) courses taken on a pass/fail basis in which a P or an F is recorded; 3) S/E graded courses in which the student receives an S; 4) additive credit courses.

Grades associated with transferred courses are neither recorded nor used in computing the cumulative GPA. Past grades, however, may be reviewed for admission to specific units within UM-Dearborn.

Effective Fall 2005, for any course repeated in Fall 2005, or thereafter, grades earned in all attempts of a course will appear on the transcript, however, only the most recently earned grade will be reflected in the cumulative GPA. Some restrictions apply. For more details, please see a CASL advisor.

**Note:** Prior to Fall 2005, grades earned in all attempts of a course appeared on the transcript and were reflected in the cumulative GPA.

**Academic Honors**

**Dean's List**
A student is honored by inclusion in the Dean’s List if he or she meets two conditions: (1) has completed during the term at least 12 credit hours of graded coursework toward degree, and (2) has achieved a 3.50 or better term GPA. The Dean’s List is compiled three times a year, after the Fall, Winter, and Summer terms. Students who have I, X, NC, or Y notations are not eligible to be included. Students who receive Academic Sanctions against them lose the opportunity to be on the Dean’s List ever again. Upon completion of all courses for the term, eligible students will be contacted via their UM-D email account with an official Dean’s List letter by the CASL Office of Advising and Student Records.

A second Dean’s List is generated for part-time students who have enrolled and completed 12 or more credit hours of graded (A-E) coursework toward degree in the Fall and Winter semesters (of a given academic year) combined, and earned a minimum 3.50 GPA in each term.

Eligibility is based exclusively upon coursework completed at UM-Dearborn. The list is posted prominently in a display case in the CASL Building.

For information about other institution-wide honors and awards, please consult the General Information section in this Catalog.

**Academic Performance**
The goal of the College is to assist its students in making satisfactory and expeditious progress toward their degrees. In order to be graduated, the student must achieve not only a cumulative GPA of 2.00 or better, but also a 2.00 or better in his/her major, cognates, minor, or each concentration. Steady achievement at this level is not always possible. From time to time students might perform at a level below 2.00 and still be permitted to register and thus to continue to make progress toward their degrees. The scholastic records of all students are examined at the end of each term during which they took courses.

**Probation**
If a student’s cumulative GPA should fall below 2.00 at the end of a term, the student will be placed on “probation”. If the student’s cumulative GPA reaches 2.00 or better at the end of this probationary term, the student is removed from probation. On the other hand, if the cumulative GPA is even lower at the end of the probationary term, the student would normally move to “required to withdraw” (RW) status and would not be allowed to register for classes for the duration of at least one year. A student with a
cumulative GPA substantially below 2.00 may be required to demonstrate his or her potential for readmission. Finally, if the cumulative GPA should show significant improvement but not yet reach 2.00 at the end of the probationary term, the student may be placed in “probation continued” status for one term.

Probation Continued
A student in “probation continued” status has an academic hold placed on registration. This means that the student may not register again until all grades for the probation continued term have been recorded and reviewed favorably. If the student on probation continued achieves a cumulative GPA of 2.00 or better at the end of this term, the student is removed from the academic hold and from probation. If the student should fail to achieve a cumulative GPA of 2.00 or better, the student would normally be “required to withdraw” (RW) and would not be permitted to register for classes for the duration of at least one year. A student with a cumulative GPA substantially below 2.00 may be required to demonstrate his or her potential for readmission. Normally, a student may be in the probation-continued category for only one regular term.

Further information may be obtained from the CASL Office of Advising and Student Records, Room 1039 CB.

Code of Academic Conduct
In order to maintain the high academic standards subscribed to by UM-Dearborn, the College has adopted a Code of Academic Conduct that defines academic misconduct and outlines report and appeals procedures.

The College, like all communities, functions best when its members treat one another with honesty, fairness, respect, and trust. Therefore, an individual should realize that deception for the purpose of individual gain is an offense against the community. Such dishonesty includes:

Plagiarism
Submitting a piece of work (for example, an essay, research paper, assignment, laboratory report) which in part or in whole is not entirely the student’s own work without attributing those same portions to their correct source(s)

Cheating
Using unauthorized notes, or study aids, or information from another student or student’s paper on an examination; altering graded work after it has been returned, then submitting the work for re-grading; and allowing another person to do one’s work and to submit the work under one’s own name.

Fabrication
Presenting data in a piece of work which were not gathered in accordance with the guidelines defining the appropriate methods for collecting or generating data and failing to include a substantially accurate account of the method by which the data were gathered or collected.

Aiding and Abetting Dishonesty
Altering documents affecting academic records; forging signatures of authorization or falsifying information on an official document, election form, grade report, letter of permission, petition, or any document designed to meet or exempt a student from an established CASL or University academic regulation.

A faculty member has the responsibility to inform the students that academic dishonesty is not acceptable. Students are responsible for discovering the sort of conduct that would be viewed as unacceptable by reviewing the Code of Academic Conduct and by asking individual instructors for the standards of their respective disciplines.

Report
Upon detecting a violation of academic integrity, a CASL faculty member is required to report it under all circumstances. The reports help CASL and the other units on campus to track repeat offenders of academic integrity who should be punished according to guidelines approved in each unit.

To file a report of a violation involving a CASL course, the faculty member needs to fill out a CASL Academic Integrity Violation Report Form (the “Report”) and files it with the CASL Associate Dean for Curriculum and Enrollment Management. The faculty member is also required to give a copy of the Report to the involved student.

Rights of Parties
A faculty member shall have the right to assign penalties, including lowered grades for coursework or an entire course, for any violation of the CASL Code of Academic Conduct.

Upon receiving a copy of the Report, the student has seven business days to make a decision on whether to appeal to it or not. If the student decides to appeal, he or she should notify the CASL Associate Dean for Curriculum and Enrollment Management within seven business days after receiving a copy of the Report.

Appeal
After receiving an official notification for an appeal to a Report, the CASL Associate Dean for Curriculum and Enrollment Management works with the student to follow CASL approved and established appeal procedures to conduct the appeal.

Policy Changes
All policies, procedures, and requirements are subject to change. These changes do not always coincide with the printing of a new Catalog. The most current information regarding CASL programs may be obtained from the CASL Office of Advising and Student Records, Room 1039 CB.

Special Programs
Honors Program
The College offers an Honors Program for students from all units of the campus who are highly motivated and qualified academically. The program provides them with an opportunity to broaden and enrich their undergraduate education by offering an alternate route for satisfying the course distribution requirements while retaining the concentration requirements. The program emphasizes general education grounded in the traditional liberal arts. It includes special honors courses, a tutorial and seminar, reduced class size, close student-professor relationships, and interaction with other honors students.

Students in the Honors Program participate in an interdisciplinary curriculum of the most stimulating courses on campus in a relaxed, intimate learning environment geared to heightening their perceptions and deepening their knowledge. The curriculum is organized to produce a cumulative effect: students who reach their junior year in the program share a common core of literature, language, and methodology upon
University of Michigan-Dearborn

Placement Into Introductory Writing Courses
Depending on score on the Placement Exam, most students take COMP 105 and COMP 106 (Writing & Rhetoric I & II). Engineering students substitute COMP 270 (Technical Writing for Engineers) for COMP 106, taking the course during the second semester of their sophomore year. College of Business, Public Health, and Community Health Education students take COMP 280 (Business Writing & Rhetoric) in place of COMP 106.

Each entering student should make every effort to complete the composition sequence during his or her first year on campus, since it is designed to acquaint students with expectations and strategies of university writing. Placement in the appropriate introductory course is determined by the Composition Placement Examination. No student may enroll in an introductory composition course before taking the Composition Placement Examination.

Students who place into COMP 099 must first pass COMP 099, which carries additive degree credit, with a grade of C- or better before enrolling in COMP 105. Transfer students who score below the COMP 105 level will be required to take COMP 227 (which carries degree credit) even if their previous writing courses have been accepted for transfer credit. Students who did not take the Placement Examination during the orientation session should contact the Orientation Office or Writing Program Office to schedule an examination. Students may submit a portfolio of written work to appeal a placement decision, but no degree credit is given for courses exempted via portfolio.

Students in the Honors Program fulfill their six-hour composition requirement by taking COMP 110 and COMP 220 (Honors Writing & Rhetoric I & II). Transfer students admitted with credit in composition from other institutions of higher education will be placed in an appropriate composition course based on their transfer credit and performance on the Composition Placement Examination, as determined by the Director of the Writing Program. Only courses judged equivalent to COMP 105 and COMP 106 may be substituted for the required courses. Students are urged to take their composition courses at UM-Dearborn. UM-Dearborn does not accept hours earned in composition through placement examinations at other universities.

For more information, see the Writing Program website.
easier to get acquainted with college life and explore the university’s academic resources.

Each First Year Seminar benefits new students in the following ways:

- Exposure to exciting ideas on a special topic
- Special attention to college-level reading, writing, discussion and research skills
- Extra-curricular activities and opportunities, such as field trips, tours and projects
- Extra mentoring and support
- Creating a sense of community and easing the social transition of students to UM-Dearborn

A few of the many seminar topics that have been developed include the following:

- “Car Culture”: the history of the automobile in American life and imagination
- “Fast Food Nation”: a look at the fast food industry through various lenses (economics, anthropology, sociology, environmental studies, politics, history and more)
- “To Infinity and Beyond”: an exploration of the concept of infinity using very creative learning techniques
- “Shakespeare on Stage, Page, & Screen”: this seminar incorporates films, texts and a trip to the Shakespeare Festival in Stratford, Ontario, to explore variations on Shakespeare plays based on different media, cultural contexts, and different artistic and ideological agendas.
- “Bad Decisions and Why We Love Them”: This course is based on a popular book by a Nobel-prize winning psychologist that shows how we can recognize common fallacies, to which we are all susceptible, and so improve our understanding of the way we think.

Some seminars are linked with a Composition class, allowing students to meet a Dearborn Discovery Core (DDC) Written and Oral Communication (GEWO) requirement and take two classes with the same group of people. The seminars will also meet other DDC requirements.

Check out the “FAQs” and “Seminars Offered” links to the left and learn more about First-Year Seminars.

Cooperative Education Program

Cooperative Education in CASL is an academic program founded on UM-Dearborn’s commitment to "excellence in teaching and learning." It promotes liberal arts learning and career/personal development through student participation in paid, professional employment. Expected learning outcomes include clarification of values, development of problem-solving and career-related skills, and enhancement of academic knowledge.

Students work one or more terms in part-time or full-time positions paying $8-15.00/hour. They also earn upper-level academic credit for their co-op experiences and attend a co-op seminar. To be eligible for the co-op program, students must be admitted to a co-op major in the college and must have completed 30 credit hours with a minimum 2.25 GPA. Transfer students must complete 12 credit hours at UM-Dearborn before they are eligible.

Students compete for open co-op positions offered by area employers. After being hired by a co-op employer, students register for co-op and are required to submit academic learning objectives and a critical evaluation essay for approval by the Faculty Director, who determines the awarding of credit. The Co-op Office reviews requests for student arranged co-ops. Contact the Co-op Office (https://umdearborn.edu/casl/undergraduate-programs/internships-co-op-education/cooperative-education) in Room 285 FCN, 313-593-5188, for more information.

Internships and Field Experiences

In addition to the paid work experience offered in the cooperative education program, non-paying off-campus educational opportunities for academic credit are offered by various departments in the College. For specifics, see the course description for each discipline’s offering.

Criminology and Criminal Justice Internship

Criminology and Criminal Justice internships are designed to provide field experience for Criminal Justice majors. Actual field experience will provide students with valuable tools to help them achieve their goal and produce humane leaders with the technical skills and social and ethical sensitivity needed to succeed in their chosen field. The internship has a seminar component. The seminar helps students make informed decisions relative to their future career in Law Enforcement or Criminal Justice related fields. Both the internship and seminar provide opportunities for students to personalize their learning experience.

Students are supervised by a faculty advisor.

For more information about the Criminology and Criminal Justice internship (https://umdearborn.edu/casl/undergraduate-programs/internships-co-op-education/criminology-and-criminal-justice-internship), contact Janice Jones, Internship Coordinator (313) 583-6404; email: criminal_justice@umich.edu

Economics Internship

The economics internship offers students field experiences with businesses, non-profit organizations and government agencies. The placement allows students to get hands-on experience applying the tools of economic analysis to specific job and project assignments. Student interns spend either eight or 16 hours per week in unpaid work at their placement site, for which they earn either three or six academic credits. Only three credit hours may be used to satisfy the concentration requirements in economics. All interns are assigned to an economics faculty advisor. This program is open to all declared economics majors, who, by the start of the internship, have completed at least two upper-level economics courses in addition to two of the following core courses: ECON 301, ECON 302 and ECON 305. Permission of the Internship Coordinator is required. To inquire, call the Economics Internship Faculty Coordinator in the Department of Social Sciences at 313-593-5164.

Environmental Studies Internship

The environmental studies internship, which is required of all environmental studies concentrations, involves students in a wide variety of positions with government organizations (Department of Environmental Quality, departments of health, city and county agencies), consulting firms, and non-governmental organizations as field assistants and researchers. Students work a prescribed number of hours per week as arranged by the advisor and employer, typically earning three credit hours. Written permission of instructor is required to participate. To inquire, contact the Department of Natural Sciences at 313-593-5339.

History and Humanities Internship

The history and humanities internship offers practical experience to students in art history, communication, English, foreign languages,
history, humanities, music, and philosophy. Students develop job-entry experiences in humanities and history-related careers. The internship includes a required seminar. Although, in general, the internship is offered for elective credit, it may be used to satisfy the following concentration requirements: Three credit hours may be applied towards a Communication major/minor or toward an Art History/Museum Studies degree and six credit hours may be applied towards a Journalism concentration. For students with a foreign language focus, three credit hours may be used within the International Studies Support Studies component or toward the cognate requirement of the French or Hispanic Studies concentrations. Prerequisites are junior or senior standing. Students earn three to six credit hours per semester. The maximum total credit hours are 12. To inquire, contact the History/Humanities Internship Office, 3028 CB, 313-583-6376.

**Psychology Internship**

Psychology internship placements offer work experiences in a wide variety of human services organizations. These include programs related to child abuse, criminal rehabilitation, crisis intervention, geriatrics, human resources, mental illness, organizational development, special education, substance abuse, and women’s issues. Students spend six or 12 hours per week at their field placement and attend a weekly seminar involving training in listening and helping skills. Students may register for three or six credits. Prerequisites are PSYC 171 and permission of instructor. To inquire, contact the Department of Behavioral Sciences at 313-593-5520.

**Public Affairs Internship**

The public affairs internship program allows students to participate in the political process through placements in a variety of governmental offices. Students in the local internship program work for state and local elected officials, law firms, and interest groups. Students in the Washington, D.C. program have worked in the White House, the Pentagon, and for Members of Congress. Students in the Ottawa, Canada program work in a Member of Parliament’s office for a period of five weeks. Admission is reserved primarily for qualified juniors and seniors of all majors. Six upper-level credits are granted for successful completion of either program. Scholarships are available. To inquire, contact the Department of Social Sciences at 313-593-5164.

**Sociology/Social Work Internship**

The sociology/social work internship offers students the opportunity to work in social welfare agencies and/or human services organizations such as domestic violence shelters, criminal justice agencies, head start programs, substance abuse rehabilitation, gerontology, hospice, human resources, health care, urban planning, and so on. The emphasis in the field experience is on the social problems that bring clients to agencies and on the social contexts within which agencies deliver services. Students spend six to eight hours per week on-site and two hours in a classroom seminar. Prerequisites are SOC 200 or SOC 201 and permission of instructor. Students may enroll for three to six credit hours. To inquire, contact the Department of Behavioral Sciences at 313-593-5520.

**Women’s and Gender Studies Internship**

The WGST internship offers students an opportunity to work in a variety of fields that address gender inequities and/or serve the needs of women and girls. These include, but are not limited to, adolescent services, domestic violence shelters, legal clinics, human resources, health care settings, advocacy organizations, and residential counseling settings. Students spent six to eight hours per week on-site and two hours in a classroom seminar. Prerequisites are WGST 303 or permission of instructor. To inquire, contact the WGST office, 2040 CB, 313-593-1391.

**Women in Learning and Leadership (WILL)**

The Women in Learning and Leadership (WILL) program is designed to develop the analytical abilities and skills of undergraduates and promote their will to be community leaders for gender equity. WILL allows students to connect knowledge gained in the classroom with learning experiences in the community by combining courses in Women’s and Gender Studies, co-curricular programming, a student leadership organization, and internship and co-op opportunities. The following are the main goals of the program:

- To encourage critical thinking, intellectual curiosity and active learning opportunities that empower women as leaders during and beyond college;
- To increase awareness of obstacles created by gender, ethnic and social class stratification, with attention to what those obstacles mean for students living in metropolitan Detroit, and to develop awareness of individual and collective strategies to address these obstacles;
- To promote self-confidence, assertiveness, a realistic sense of efficacy and willingness to lead;
- To provide opportunities for students to explore their career and life choices, and to build a multicultural and co-generational community on campus that supports this learning and exploring;
- To develop ongoing networks of collaboration between community organizations, leaders, and students.

**Requirements for WILL**

Students accepted into WILL complete 4 courses in Women’s and Gender Studies and an internship or co-op experience in a field of their choice. There are two required courses for the program: Introduction to Women’s and Gender Studies, and a Women, Leadership and Social Change class. For their two electives, students may choose from the wide variety of courses offered by the Women’s and Gender Studies program. In addition to fulfilling these curricular requirements, WILL students spend a minimum of 15 hours per semester engaged in co-curricular activities related to gender equity and community building. Among their other activities, the WILL student group engages in volunteer opportunities with social service agencies in metropolitan Detroit. In addition, they have the opportunity to meet with locally and nationally known gender equity leaders for casual “fireside chats” and are offered annual training seminars by local women leaders. They organize speaker and film series on topics such as leadership for global gender justice, eating disorders and body image, and violence awareness on campus. They also run an innovative and successful mentoring program for middle school girls in Southwest Detroit. WILL students’ internship placements have allowed them to work with women in the criminal justice system, in programs for at-risk youth, in an oral history project interviewing Arab-American women, and in a variety of positions in legal, medical, business and education fields with women leaders as mentors.

The program recruits in April every academic year for acceptance into the program the following Fall term. Students accepted into the program have a minimum of a 3.0 grade point average, demonstrated leadership ability, and an interest in fostering gender equity.

For more information, contact the Director of WILL at 313-593-1391 or visit 2040 CB.
CASL Online and Blended Courses

Regular credit-bearing courses are offered via online and blended formats to UM-Dearborn students (and guest students) who can benefit from the flexibility and convenience of online course delivery. Students who want to pursue a university education but have special constraints such as job demands, childcare or eldercare responsibilities, pregnancy or medical limitations may also find that online learning helps them stay on track. Online learning classes are taught by UM-Dearborn’s distinguished faculty and are equivalent in academic depth and rigor to face-to-face versions taught in the traditional classroom. New courses are added to the online repertoire each year. A few courses are in blended format; that is, the classes meet on campus for one or two class periods and online for the remainder.

Regularly enrolled students may elect online learning courses as part of the registration process. Guest students must submit the Michigan Uniform Guest Application, available in our Admissions/Registrar’s offices or in the Registrar’s office of the student’s home institution, and complete the admissions process before registering for classes.

Online courses usually require regular participation in online discussion groups established for the class. Required materials may be made available in various formats, including conventional textbooks and online resources, including video and/or audio recordings. Some online courses may require attendance on campus at an orientation session and/or for exams, though special proctoring arrangements can be made, especially for non-local students.

Canvas (https://umdearborn.edu/canvas) is the home for all online courses, as well as some assignments, discussions, and resources for hybrid and on-campus classes. This Canvas portal page will provide you with up-to-date Canvas policies (https://umdearborn.edu/canvas/canvas-campus-policies), help & support (https://umdearborn.edu/canvas/canvas-help-support), and other more specific information for faculty (https://umdearborn.edu/canvas/canvas-faculty) and students (https://umdearborn.edu/canvas/canvas-students).

The Digital Education office is located in 1100 Social Sciences Building, email umd-digiteducation@umich.edu

Japan Center for Michigan Universities

Since 1989, the fifteen Michigan public universities have operated a unique program in Japanese language and culture in our sister state in Japan, the Shiga prefecture. The Japan Center for Michigan Universities is in Hikone, a beautiful, medium-sized, non-westernized city in central Japan. The $15 million facility, built by the Shiga government, includes classrooms, offices, and apartments with cooking facilities for student occupancy; home stays, of varying duration, may also be arranged. The full academic program runs from September through the end of April; students may also select a one-semester program, or the Summer Intensive Program in the Japanese language. UM-Dearborn students receive 26 hours of credit for UM-Dearborn courses in Japanese language (see course descriptions under Japanese in this Catalog for the following: JPN 129-JPN 175, JPN 228-JPN 229, Japanese Culture and Society (JPN 395, JPN 396), and two other courses taught by visiting professors. These have included Japanese art and painting, Japanese technology and business, energy and environment in Japan, modern Japanese history, and mass media.

For current information on program fees and housing, visit the Japan Center for Michigan Universities (http://jcmu.isp.msu.edu) website. Applicants need not know Japanese, but they should have studied another foreign language and have had some foreign travel experience.

They must have sophomore standing by the end of Winter term and a 2.5 or higher GPA. Students should contact the: Office of International Affairs (Room 108 in The Union at Dearborn) for additional information.

Study Abroad

Students interested in other study abroad programs should consult faculty in Modern and Classical Languages, their major advisor, or the Office of International Affairs (https://umdearborn.edu/offices/international-affairs/travel-abroad/study-abroad) (Room 108 in The Union at Dearborn) for additional information.

Special Centers, Facilities and Services

Office of Advising and Student Records

The Office of Advising and Student Records helps students make informed decisions about their course of study and the liberal arts. CASL advisors are available to provide curricular and career option information, program requirements, University policies and procedures, and campus resources. The Office also coordinates academic advising between students and faculty advisors, provides necessary College forms and materials, and reviews students’ academic progress and performance at specified intervals.

The Office of Advising and Student Records (https://umdearborn.edu/casl/undergraduate-programs/advising-student-records) contact information: 1039 CB, 313-593-5293, and online at casl-advising@umd.umich.edu.

University of Michigan-Dearborn Writing Center

The University Writing Center, staffed by experienced student peer consultants under the supervision of full-time faculty in composition, provides support for all UM-Dearborn students wishing to improve their writing. Students needing regular one-on-one help in developing basic writing skills, as well as more advanced students wishing to improve their writing, will find the Writing Center useful.

The Writing Center is open five days a week during Fall and Winter terms and on a more limited basis during the summer term. It is strongly recommended that students make an appointment should they wish to work with a peer consultant. The center is equipped with personal computers and software for student use including word processing software, grammar programs and Internet access and research. For further information, contact the Writing Program Office, 3018 CB, or telephone 313-593-5238.

The center is located in 3035 CB with smaller satellite locations around campus. The center tries to accommodate walk-ins but prefers students make appointments online at umdearborn.edu/casl/writ_center.

Center for Arab American Studies

The Center for Arab American Studies (https://umdearborn.edu/casl-centers-institutes/center-arab-american-studies) focuses on scholarship, research, and engagement with the Arab-American community in Dearborn and Metropolitan Detroit. Faculty in Arab American Studies are actively engaged in research and scholarship on current issues facing Arab Americans as well as Arab American history and culture. As teachers, they seek to help all students understand the role of Arabs in American society, the role of America in Arab society, and the vibrant interplay between them. For additional information contact the Center in Room 2040 CB or call 313-593-4925.
Center for Armenian Research

The Armenian Research Center (https://umdearborn.edu/casl/centers-institutes/center-armenian-research) (ARC) was established for the documentation and the publication of materials in the field of Armenian studies and affairs. The ARC accomplishes this work in a variety of ways. It provides access to a computerized database of books, periodical articles, audiovisual material, and other items concerning Armenians. This database is gradually also becoming accessible through the online catalog of the Mardigian Library. The ARC also regularly publishes scholarly books on Armenian topics. It supports both academic and public outreach by participating in forums, sponsoring conferences, exhibitions, public lectures and answering questions from scholars, students and the public media. Finally, the ARC sponsors and supports the teaching of Armenian language instruction courses on the University of Michigan, Dearborn campus. For additional information call 313-593-5181.

Center for Mathematics Education

The Center for Mathematics Education is dedicated to improving the quality of teacher preparation for prospective teachers and to making continuous professional development available for current teachers. The goal is to strengthen the teaching of mathematics and improve student learning. The professional development programs offered by the Center seek to deepen teachers’ understanding of the mathematics they teach and emphasize best teaching practices through the study and use of current research and standards-based curriculum resources. These professional development activities are offered at school district sites and at regional intermediate school districts, and carry at least 3 SB-CEU credits. It is also possible for classroom teachers to enroll for graduate credit. These credits can be applied towards the degree requirements for the Specialty in Middle Grades Mathematics program that is part of the College of Education, Health, and Human Services’ Master of Arts in Education degree. For additional information see the Center for Mathematics Education (https://umdearborn.edu/casl/centers-institutes/center-math-education) website.

Center for Ethnic and Religious Studies

In 2001, faculty in the College of Arts, Sciences, and Letters at the University of Michigan-Dearborn established a Center for the Study of Religion and Society.

This innovative and unique Center was designed to serve a number of purposes:

• Provide a focus for interdisciplinary and multidisciplinary scholarly research on Religion and its relationship to American society.
• House and support the existing interdisciplinary minor in Religious Studies.
• Coordinate with other activities on campus related to religion, the Harvard Pluralism Project being one example.
• Serve as a point of contact for members of the metropolitan community interested in issues related to religion and to engage that community in a dialog about those issues.

Faculty affiliated with the Center and the Religious Studies minor come from a range of disciplines including History, Anthropology, English, Political Science, Psychology, and Philosophy. Many are actively involved in research and outreach with religious communities in Dearborn and Metropolitan Detroit.

For more information, please see the Center (https://umdearborn.edu/casl/centers-institutes/center-ethnic-and-religious-studies) website or call 313-583-6335.

Mathematics Learning Center (MLC)

The Department of Mathematics and Statistics supports a peer tutoring program for UM-Dearborn students needing assistance with their work in college algebra, pre-calculus, calculus, differential equations, linear algebra, statistics, and mathematics education courses. Peer tutors, who are carefully vetted, trained, and supervised by the Director of the Center, are available during posted hours throughout the week. Computer tutorials and videos are also available to assist students in their preparation for the Mathematics Placement Exam and in certain mathematics courses. Please call 313-583-6351 or visit the MLC (https://umdearborn.edu/casl/undergraduate-programs/academic-support/math-learning-center) website for a current list of programs available for student support. The MLC is located in Room 2076 CB. The department provides auxiliary tutorial support for developmental algebra courses (MATH 080 and MATH 090). Instructors for these courses will have information for students regarding the tutoring hours and location at the beginning of each semester.

Science Learning Center

The Department of Natural Sciences operates a Science Learning Center (SLC) for students enrolled in a variety of science courses. The SLC program ensures that all science students have adequate preparation for high achievement in science by providing self-paced, individualized instruction in essential mathematical, conceptual, and laboratory skills. Instructional modules are presented in one of several formats, including printed material and digital or multimedia tutorials that may be accompanied by specific laboratory instruments. All instructional modules are available online at the SLC (https://umdearborn.edu/casl/undergraduate-programs/academic-support/science-learning-center) website. Mastery of the subject matter is assessed by a short post test that is administered in the SLC. Students are encouraged to make advance reservations for post tests for instrument-based modules. Signup sheets are available in the SLC which is located in Room 1143 SB/CW. It is open Monday through Friday during all academic terms. Current hours of operation are listed on the SLC (https://umdearborn.edu/casl/undergraduate-programs/academic-support/science-learning-center) website.

SLC staff also manage a Supplemental Instruction (SI) Program for students in the natural sciences. Supplemental instruction is an academic assistance program that utilizes peer-assisted study sessions. The SI sessions are regularly-scheduled informal review sessions in which students compare their class notes, discuss assigned readings, practice problem solving, develop organizational tools, and predict test items. The participants learn how to integrate course content and study skills while working together. The sessions are facilitated by “SI leaders”, students who have previously taken the courses and done well in them. The SI leaders also attend all the lectures, take notes, and are model students. The main purpose of this program is to improve students’ grades and increase student retention and graduation rates.

African and African American Studies

African and African American Studies (AAAS) is an interdisciplinary program housed in the College of Arts, Sciences, and Letters at the UM-Dearborn. The program offers a flexible, challenging and stimulating
course of studies for students who wish to pursue a major that will allow them to:

- Acquire knowledge of the history and cultural legacies of Africans and African Americans throughout the Diaspora.
- Ground themselves in the intellectual contributions of major African and African American scholars, political leaders, and artists.
- Gain informed perspectives on crucial issues confronting African and African American communities throughout the world.
- Refine their skills in analysis, discourse, and writing.
- Apply their university learning as knowledgeable, engaged members of their home communities.

The Bachelor's Degree in African and African American Studies offers students a working knowledge of the history of African Americans in the United States, the cultural continuities in philosophy, religion and the arts linking African Americans to the African continent, as well as the critical social, political and developmental issues facing African communities on the continent and throughout the diaspora. Students will have a grasp of the critical movements for change in African and African American history, as well as the contributions of outstanding political leaders, intellectuals and artists. Knowledge of the struggles of African and African descendants throughout the diaspora for greater human rights and a higher quality of life is a central feature of the major. These pedagogical objectives are facilitated by a commitment to interdisciplinary scholarship and approaches that emphasize the value of an internationalist perspective. The major will consist of 30 credit hours, 24 of which must be at the upper level. This course of study prepares students to pursue a wide spectrum of professional studies, including law, social work, K-12 education, and civic leadership, public policy, communication, journalism, or to pursue the doctorate degree for a career in college level teaching and research.

Many of the courses offered in the African and African American Studies Program are cross listed with other disciplines, such as Anthropology, Communications, Economics, English, History, Music History, Psychology and Sociology.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
Social and Behavioral Analysis (GEIN) – 6 Credits (p. 19)
Intersections (GEHA) – 6 Credits (p. 19)
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

30 hrs (24 hrs must be upper level):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAS 300</td>
<td>Introduction to AAAS</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 345</td>
<td>West Africa Since 1800</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 371</td>
<td>African Experience in the Americas</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 477</td>
<td>African American English</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 316</td>
<td>African American History</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 368</td>
<td>Black Exp in U.S.-1865-Present</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 304</td>
<td>Detroit History and Culture</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 322</td>
<td>Psychology of Prejudice</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 369</td>
<td>Civil Rights Movement in America</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 473</td>
<td>Race, Crime, and Justice</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 340</td>
<td>Race and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>MHIS 120</td>
<td>History of Jazz</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 239</td>
<td>Intro to Lit: African American</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 320</td>
<td>African-American Music History</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 333</td>
<td>Intro to Gospel Music</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 385</td>
<td>Black Cinema</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 388</td>
<td>W. African Music: Trad.&amp;Glob.</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 469</td>
<td>Contemporary African Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 470</td>
<td>Black Women / Lit, Film, Music</td>
<td>3</td>
</tr>
</tbody>
</table>
African American Institutions
Select 3 credit hours from the following: 3
- AAAS 304 Detroit History and Culture
- AAAS 313 African American Religions
- AAAS 3634 History of Islam in the US
- AAAS 367 Religion and Resistance
- AAAS 389 Odyssey of Black Men in Amer
- AAAS 393 Black Women, Rel & Spirituality
- AAAS 449 Black Family in Contemp Amer

Economics & Politics of the Black Experience
Must Petition – See Program Director

Research, Writing & Discourse in African/African American Studies
Must Petition – See Program Director

Independent Study Project or Thesis in Critical Contemporary Issues
Select 3 credit hours from the following: 3
- AAAS 498 Thesis
- AAAS 499 Independent Study

Total Credit Hours 30

Notes: At least 15 of the upper level credit hours in the AAAS major must be elected at UM-Dearborn

Minor or LIBS Concentration Requirements
To fulfill a minor or LIBS concentration in African and African American Studies, a student must complete 15 credit hours of coursework (6 credit hours must be exclusively African/African-American in content – CAGF) in the program as outlined below.

Required courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAS 300</td>
<td>Introduction to AAAS</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 12 hrs of 300/400; 3000/4000 level courses: 12

AAAS 300, introduces students to important issues and debates within African and African American Studies. The course will always incorporate both African and African-American themes; however, the emphasis may vary to reflect the specialties of the professor(s) at a given time.

Each term, AAAS offers a wide variety of 300/3000 and 400/4000 level courses that are designed to fulfill the core requirements of the AAAS minor or concentration. See the listing of AAAS course offerings below. Successful completion of the program requires that a student complete at least six of the required 15 credit hours in courses that are exclusively African and African-American in content – CAGF, (AAAS 316, AAAS 333, AAAS 345, AAAS 368, AAAS 371, AAAS 385, AAAS 389, AAAS 449, AAAS 469, AAAS 470).

Students pursuing a minor or concentration in AAAS may choose to complete their coursework with a final thesis project (AAAS 498) that reflects particular interests developed during their course of study. The thesis option can be used to fulfill three hours of the required 15 hours of upper-level coursework. The AAAS thesis project will be completed under the direction of a faculty member whose scholarly interests are compatible with the research interests of the student.

For more information about the African and African American Studies program, please contact the CASL College Wide Programs Coordinator in 2040 CB, 313-593-4925.

Anthropology
Anthropology, the comparative study of humanity and culture, seek to explain both diversity and similarity in human behavior around the world. It is an academic discipline that integrates a number of specialized fields, including physical anthropology, archaeology, social and cultural anthropology, linguistic anthropology, and applied studies of human problems.

The University of Michigan-Dearborn program emphasizes anthropology’s unique concern with the inter-dependence of human biology and culture, but also explores material culture in the past and present (through archeology), the varied experience of religion, race and gender, communication and language (through linguistic anthropology), and the critical evaluation of one’s own culture in the context of a globalized world. Many courses apply anthropological concepts to real-world problems and solutions.

A major or minor in anthropology opens doors in many fields, including law, medicine, public health, education, social work, criminal justice, international development, diplomacy, social justice work, communications, management, and various types of non-profit work. Anthropology prepares students for graduate work in anthropology, museum studies, and other social science fields. Anthropology is both a STEM science, which introduces students to multiple perspectives on the scientific method, improves scientific literacy, and develops critical thinking, as well as an interpretive endeavor in which the human experience is understood through multiple lines of evidence.

Anthropology also prepares students with the skills necessary in the modern workplace, including communication and cultural awareness, teamwork, problem solving, planning and organization, and both qualitative and quantitative analysis. The holistic approach to culture and biology is especially useful for careers in the medical sciences, while the cross-cultural exposure is essential preparation for students going into professions such as education, business, human services, or international development.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 15)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
• Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 101</td>
<td>Introduction to Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 202</td>
<td>World Cultures</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 325</td>
<td>Anth of Health and Environment</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 331</td>
<td>Human Evolution</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 336</td>
<td>Introduction to Primates</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 340</td>
<td>Race and Evolution</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 341</td>
<td>Human Paleontology</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 345</td>
<td>Cultural Ecology and Evolution</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 406</td>
<td>Culture and Sexuality</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 409</td>
<td>Human Body, Growth &amp; Health</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 415</td>
<td>Nutrition and Health</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 430</td>
<td>Medical Anthropology</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 435</td>
<td>Human Genetics</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 459</td>
<td>Human Osteology</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 482</td>
<td>Psychological Anthropology</td>
<td>1</td>
</tr>
</tbody>
</table>

Additional 15 credit hours of anthropology (ANTH) courses numbered 300 or above

Cognates

Students will elect six hours in upper-level courses from the following disciplines: art history (ARTH), biology (BIOL), economics (ECON), English (ENGL), geography (GEOG), history (HIST), linguistics (LING), music history (MHIS), philosophy (PHIL), psychology (PSYC), sociology (SOC).

1 Students are encouraged to take ANTH 331 prior to enrolling in the courses with the strongest biological emphasis (i.e., ANTH 336, ANTH 340, ANTH 341, and ANTH 409).

2 Courses from other disciplines may be considered by petition.

Field School and Field School Scholarship

Field schools teaching anthropological research methods can be life-changing experiences that provide essential training for careers in anthropology as well as practical field research experience applicable to other professions. Field schools take place all over the world and provide students with training in anthropological methods in archeology, human paleontology, bioarcheology, ethnology, linguistics, and primatology. UM-Dearborn students have attended field schools in Australia, Jordan, Kenya, Peru, Guatemala, Costa Rica, Mexico, Spain, France, Ireland, and various sites in the United States.

UM-Dearborn’s anthropology program helps provide these experiences in two ways. We offer a field school scholarship that helps students subsidize the cost of attending a field school in their chosen area. The scholarship program is competitive, and preference is given to students majoring or minoring in anthropology. Anthropology faculty also run their own field schools that can be elected for UM-Dearborn credit.

Notes:

1. At least 15 of the 24 upper level hours in ANTH must be elected at UM-Dearborn.
2. No more than 6 hours of independent study and no more than 6 hours of independent readings within the Behavioral Sciences (ANTH, PSYC, SOC) may be counted in the 120 hours required for graduation.

Minor or LIBS Concentration

A minor or concentration consists of ANTH 101 and 12 credit hours of upper-level credit in anthropology (ANTH).

Applied Statistics

The ability to analyze and use such data requires a new set of skills that an Applied Statistics major offers.

Statistics is the science of learning from data. It includes planning for the collection of data, managing data, analyzing, interpreting, and drawing conclusions from data, and identifying problems, solutions and opportunities using the analysis. Massive amounts of data are being collected from digital applications and mobile devices in addition to those from the fields of engineering, environment, finance, healthcare, retail, and social sciences. The volume, variety and velocity of this data poses unique opportunities and challenges. The ability to analyze and use such data requires a new set of skills that an Applied Statistics major offers. This makes Applied Statistics one of the fastest growing career fields today. The Applied Statistics major builds critical thinking and problem solving skills in data analysis and empirical research. It prepares students for careers in business, industry, and government as well as for advanced degree programs in statistics and quantitative fields. The applied statistics major allows students to focus on their passions including genetics, healthcare, pharmaceuticals, public transportation, automotive areas, communication systems, financial markets, utilities, public policy, public health, government, manufacturing, quality control and others.
Students who desire to major in applied statistics may be broadly classified into four groups:

1. Those whose interest lie primarily in the study of mathematical statistics as a science, the purpose of such students being usually to continue their studies at the graduate level in order to become teachers at the college level, or persons otherwise engaged in an occupation in which knowledge of advanced statistics is required.
2. Those whose interests lie in the fields of engineering, biology, chemistry, economics, physics, with emphasis on applied statistics.
3. Those who wish to integrate their program between statistics and related fields of public health, and the health and social sciences.
4. Those whose interests lie in the field of economics and the actuarial sciences.

Prerequisites to the Major

Students majoring in Applied Statistics must take the following Prerequisites:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Calc I for Biology &amp; Life Sci</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calc II for Biology &amp; Life Sci</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 116</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2-3</td>
</tr>
<tr>
<td>or MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 10-11

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

24 credit hours at the 300+ level is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 325</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Mathematical Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Applied Statistics Core

Select 12 hours from the following:

- STAT 301 Biostatistics I
- or STAT 325 Applied Statistics I
- STAT 326 Applied Statistics II
- STAT 430 Applied Regression Analysis
- STAT 440 Design and Analysis of Expermt

Electives in Statistics

Select any two upper level STAT courses: 6

Cognates

Select 6 credit hours from the following:

- DS 300 Quantitative Model and Anlys I
- DS 350 Quantitative Model and Anly II
- ECON 335 Experimental Economics
- ECON 4015 Introduction to Econometrics
- IMSE 4675 Six Sigma & Stat Proc Improv
- MATH 413 Linear Algebra
- MATH 420 Stochastic Processes
- MATH 451 Advanced Calculus I

Other courses by Petition. See the Applied Statistics Program Advisor.

Total Credit Hours 30

Notes:

1. At least 12 of the 24 upper level credit hours in Statistics (STAT) must be elected at UM-Dearborn
2. Students cannot receive credit for both STAT 301 and STAT 325.
3. Students wishing to use graduate level courses (STAT 500+) as part of the 24 credit hours required for the major must submit a Petition to obtain the approval of the Applied Statistics Program Advisor.

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper level courses (300 or above level) in Applied Statistics (STAT). Only one of
Arabic Studies

Minor or LIBS Concentration Only

A minor or concentration consists of 12 credit hours of upper-level courses in Arabic (ARBC) (excluding ARBC 350).

Prerequisites to the Minor/Concentration

Non-native speakers of Arabic must successfully complete ARBC 202: Intermediate Arabic II (at or outside UM-Dearborn) or demonstrate equivalent Arabic Proficiency Exam offered by LCC Department.

Armenian

(not a field of concentration, see Modern and Classical Languages (http://catalog.umd.umich.edu/undergraduate/college-arts-sciences-letters/modern-classical-languages))

Applied Art

Minor or LIBS Concentration Only

Among the humanistic disciplines, Applied Art offers great opportunity for interdisciplinary inquiry and teaching. Art is often discussed as a universal form of communication, and the processes of visual interpretation and creation cut across human experience. In an image-centered society such as our own, the objects and critical methods of art creation provide a vital linkage point not only between disciplines, but also between students and the world around them. To provide more specific examples, students majoring in English, Anthropology, Journalism and Screen Studies, Biology, and Computer Engineering would benefit from an Applied Art minor to build both their knowledge of processes of human artistic creation and also the practical skills of digital image creation for different contexts and uses.

Prerequisites:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 206</td>
<td>Basic Design-Color</td>
<td></td>
</tr>
</tbody>
</table>

And one class from (CAPD):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 201</td>
<td>Beginning Painting</td>
<td></td>
</tr>
<tr>
<td>ART 202</td>
<td>Beginning Drawing</td>
<td></td>
</tr>
<tr>
<td>ART 204</td>
<td>Beginning Watercolor</td>
<td></td>
</tr>
<tr>
<td>ART 210</td>
<td>Beginning Digital Design</td>
<td></td>
</tr>
<tr>
<td>ART 220</td>
<td>Intro to Digital Photography</td>
<td></td>
</tr>
</tbody>
</table>

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 306</td>
<td>Intermediate Design-Color</td>
<td></td>
</tr>
<tr>
<td>ART 321</td>
<td>Intermediate Painting</td>
<td></td>
</tr>
<tr>
<td>ART 322</td>
<td>Intermediate Drawing</td>
<td></td>
</tr>
<tr>
<td>ART 323</td>
<td>Figure Drawing</td>
<td></td>
</tr>
<tr>
<td>ART 324</td>
<td>Intermediate Watercolor</td>
<td></td>
</tr>
<tr>
<td>ART 332</td>
<td>Creating the Graphic Novel</td>
<td></td>
</tr>
<tr>
<td>ART 360</td>
<td>Introduction to Printmaking</td>
<td></td>
</tr>
</tbody>
</table>

Arab American Studies

MINOR OR LIBS CONCENTRATION ONLY

Dearborn and its neighbors are home to one of the largest—and most diverse—communities of people of Arab descent outside of the Middle East. The Center for Arab American Studies at UM-Dearborn encourages students to develop a coherent understanding of the unique circumstances surrounding the incorporation of Arab immigrants into American society; the broad range of diversity found within Arab American communities; how the Arab American experience is shaped by local, national and international conditions; and the contributions of Arab Americans to American culture and history.

A minor or concentration requires 15 credit hours of upper level coursework including AAST 3150 and 12 additional credits of any 300/400; 3000/4000 level AAST courses. Other disciplines offer courses relevant to the AAST minor. Students will be able to count one such course toward the minor/concentration with approval of the AAST faculty advisor by petition.

The Arab American Studies (AAST) Certificate is an interdisciplinary undergraduate and post-baccalaureate certificate that prepares students for working and living in our diverse metropolitan region and world by concentrating on the historical and current experiences of Arab and Muslim Americans and the relevance of those experiences for understanding race and ethnicity in the U.S. and globally. The interdisciplinary approach of the certificate provides students with analytical frameworks for understanding how social, cultural, legal, and political factors influence the lives of Arab American individuals, families, and communities. The program of study examines a broad spectrum of diversity to understand the ways that immigration, racism and discrimination, gender and sexuality, class, ethnicity, culture, and religion intersect with one another in people’s lives.

12 credit hours required.

Required course: (3 credit hours from):

AAST 3150 Introduction to Arab American Studies OR AAST 3151 Public Culture Work in Arab Detroit

Additional Courses (9 credit hours required from): AAST 3150, AAST 3634, AAST 3676, AAST 473, AAST 4677, AAST 4678; ANTH 373;

NOTES REGARDING AAST CERTIFICATE PROGRAM:

1. A minimum 2.0 cumulative GPA is required for admission to the program.

2. A maximum of 3 credit hours of transfer coursework may be counted toward the minimum 12 credit hours required for the program by Petition to the Program Director.

3. None of the courses applied to the certificate may be taken pass/fail.

4. A minimum 3.0 GPA in the UM-Dearborn courses counting toward the AAST certificate is required at the time of graduation and/or awarding of the certificate.

STAT 301 or STAT 325 can be used to satisfy this requirement. Students with majors in mathematics, the natural sciences, or the social sciences may find the minor in Applied Statistics to be a valuable supplement to their major.
Art History

Art History may be elected as a major program within the Department of Literature, Philosophy, and the Arts. The art history program offers the student practical, critical, and historical studies in architecture, sculpture, painting, the decorative arts, printmaking, and photography. Each art is considered a creative process which, like language, has developed as an expression of human ideas, emotions, and life conditions. The history of these arts is presented as a visual record of the evolution of human societies, which can give the student a valuable introduction to the various world civilizations.

Students may elect one of two concentration tracks in Art History: Track A – Art History, or Track B – Museum Studies. The major programs offer the student a broad humanistic education within the context of an undergraduate degree and prepare the student for graduate work in academic, museum, or commercial fields.

Prerequisites to the Major

Students majoring in Art History (Track A) or Museum Studies (Track B) are required to take the following Prerequisites:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 101</td>
<td>Western Art to 1400</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 102</td>
<td>Western Art from 1400</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 103</td>
<td>Arts of Asia</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

Track A: Art History

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 311</td>
<td>Art of China</td>
<td></td>
</tr>
<tr>
<td>ARTH 312</td>
<td>Art of Japan</td>
<td></td>
</tr>
<tr>
<td>ARTH 313</td>
<td>Chinese Painting</td>
<td></td>
</tr>
<tr>
<td>ARTH 315</td>
<td>Early Chinese Art and Archaeol</td>
<td></td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Islamic Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Islamic Decorative Arts</td>
<td></td>
</tr>
<tr>
<td>ARTH 416</td>
<td>Early Mod Jpn Paint&amp;Wood Prnts</td>
<td></td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Egyptian Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 321</td>
<td>Greek Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 322</td>
<td>Roman Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 327</td>
<td>Myth &amp; Ritual in Classical Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 425</td>
<td>Women in Classical Antiquity</td>
<td></td>
</tr>
<tr>
<td>ARTH 426</td>
<td>City of Ancient Rome</td>
<td></td>
</tr>
<tr>
<td>ARTH 427</td>
<td>Greek Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 428</td>
<td>Roman Art and Memory</td>
<td></td>
</tr>
<tr>
<td>ARTH 331</td>
<td>Erly Christian Byzant Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 332</td>
<td>Early Med and Romanesque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 333</td>
<td>Gothic Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 334</td>
<td>The 14th Century</td>
<td></td>
</tr>
<tr>
<td>ARTH 335</td>
<td>Women in Medieval Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 341</td>
<td>Art&amp;Arch in Early Ren Florence</td>
<td></td>
</tr>
<tr>
<td>ARTH 342</td>
<td>High Renaissance and Mannerism</td>
<td></td>
</tr>
<tr>
<td>ARTH 343</td>
<td>Northern Renaissance Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 344</td>
<td>Italian Renaissance Sculpture</td>
<td></td>
</tr>
<tr>
<td>ARTH 351</td>
<td>Southern Baroque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 352</td>
<td>Northern Baroque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 434</td>
<td>Renaissance and Baroque Rome</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ARTH 454</td>
<td>Rembrandt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modern (CAMA):</td>
<td></td>
</tr>
<tr>
<td>ARTH 305</td>
<td>The Arts &amp; Culture of Detroit</td>
<td></td>
</tr>
<tr>
<td>ARTH 360</td>
<td>Art of Glass</td>
<td></td>
</tr>
<tr>
<td>ARTH 361</td>
<td>American Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 362</td>
<td>Impressionism and Post-Impress</td>
<td></td>
</tr>
<tr>
<td>ARTH 363</td>
<td>Arts of the Twentieth Century</td>
<td></td>
</tr>
<tr>
<td>ARTH 364</td>
<td>Picasso</td>
<td></td>
</tr>
<tr>
<td>ARTH 365</td>
<td>Modern Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 366</td>
<td>The Modern Print</td>
<td></td>
</tr>
<tr>
<td>ARTH 367</td>
<td>Contemporary Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 368</td>
<td>American Photography</td>
<td></td>
</tr>
<tr>
<td>ARTH 375</td>
<td>Urban Design Perspectives</td>
<td></td>
</tr>
<tr>
<td>ARTH 469</td>
<td>Collage, Montage, Assemblage</td>
<td></td>
</tr>
<tr>
<td>Also Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 400</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 410</td>
<td>Museum Practice Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>Art History Electives</td>
<td>Select any two upper-level Art History courses (except ARTH 399):</td>
<td>6</td>
</tr>
<tr>
<td>Cognates</td>
<td>Select one studio art course (CAAR):</td>
<td>3</td>
</tr>
<tr>
<td>ART 201</td>
<td>Beginning Painting</td>
<td></td>
</tr>
<tr>
<td>ART 202</td>
<td>Beginning Drawing</td>
<td></td>
</tr>
<tr>
<td>ART 204</td>
<td>Beginning Watercolor</td>
<td></td>
</tr>
<tr>
<td>ART 206</td>
<td>Basic Design-Color</td>
<td></td>
</tr>
<tr>
<td>ART 210</td>
<td>Beginning Digital Design</td>
<td></td>
</tr>
<tr>
<td>ART 220</td>
<td>Intro to Digital Photography</td>
<td></td>
</tr>
<tr>
<td>ART 306</td>
<td>Intermediate Design-Color</td>
<td></td>
</tr>
<tr>
<td>ART 321</td>
<td>Intermediate Painting</td>
<td></td>
</tr>
<tr>
<td>ART 322</td>
<td>Intermediate Drawing</td>
<td></td>
</tr>
<tr>
<td>ART 323</td>
<td>Figure Drawing</td>
<td></td>
</tr>
<tr>
<td>ART 324</td>
<td>Intermediate Watercolor</td>
<td></td>
</tr>
<tr>
<td>ART 332</td>
<td>Creating the Graphic Novel</td>
<td></td>
</tr>
<tr>
<td>ARTH 360</td>
<td>Art of Glass</td>
<td></td>
</tr>
<tr>
<td>Select one upper-level course from the following disciplines: ARBC, ART, COMM, ENGL, FREN, GER, GLOC, HIST, HUM, JASS, LING, MCL, MHIS, PHIL, POL, SPAN, SPEE, WGST (excluding POL 494, POL 495, POL 496, POL 497):</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 33

Track B: Museum Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Required Courses

Select one course from each of the following four areas: 12

Asian/Non-Western (CAAS):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 311</td>
<td>Art of China</td>
<td></td>
</tr>
<tr>
<td>ARTH 312</td>
<td>Art of Japan</td>
<td></td>
</tr>
<tr>
<td>ARTH 313</td>
<td>Chinese Painting</td>
<td></td>
</tr>
<tr>
<td>ARTH 315</td>
<td>Early Chinese Art and Archaeol</td>
<td></td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Islamic Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Islamic Decorative Arts</td>
<td></td>
</tr>
<tr>
<td>ARTH 416</td>
<td>Earl Mod Jpn Paint&amp;Wood Prnts</td>
<td></td>
</tr>
</tbody>
</table>

Medieval/Classical (CAMC):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 319</td>
<td>Egyptian Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 321</td>
<td>Greek Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 322</td>
<td>Roman Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 327</td>
<td>Myth &amp; Ritual in Classical Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 331</td>
<td>Early Christian Byzantine Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 332</td>
<td>Early Med and Romanesque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 333</td>
<td>Gothic Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 334</td>
<td>The 14th Century</td>
<td></td>
</tr>
<tr>
<td>ARTH 335</td>
<td>Women in Medieval Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 345</td>
<td>Women in Classical Antiquity</td>
<td></td>
</tr>
<tr>
<td>ARTH 426</td>
<td>City of Ancient Rome</td>
<td></td>
</tr>
<tr>
<td>ARTH 427</td>
<td>Greek Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 428</td>
<td>Roman Art and Memory</td>
<td></td>
</tr>
</tbody>
</table>

Renaissance/Baroque (CARB):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 341</td>
<td>Art&amp;Arch in Early Ren Florence</td>
<td></td>
</tr>
<tr>
<td>ARTH 342</td>
<td>High Renaissance and Mannerism</td>
<td></td>
</tr>
<tr>
<td>ARTH 343</td>
<td>Northern Renaissance Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 344</td>
<td>Italian Renaissance Sculpture</td>
<td></td>
</tr>
<tr>
<td>ARTH 351</td>
<td>Southern Baroque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 352</td>
<td>Northern Baroque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 434</td>
<td>Renaissance and Baroque Rome</td>
<td></td>
</tr>
<tr>
<td>ARTH 454</td>
<td>Rembrandt</td>
<td></td>
</tr>
</tbody>
</table>

Modern (CAMA):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 305</td>
<td>The Arts &amp; Culture of Detroit</td>
<td></td>
</tr>
<tr>
<td>ARTH 360</td>
<td>Art of Glass</td>
<td></td>
</tr>
<tr>
<td>ARTH 361</td>
<td>American Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 362</td>
<td>Impressionism and Post-Impress</td>
<td></td>
</tr>
<tr>
<td>ARTH 363</td>
<td>Arts of the Twentieth Century</td>
<td></td>
</tr>
<tr>
<td>ARTH 364</td>
<td>Picasso</td>
<td></td>
</tr>
<tr>
<td>ARTH 365</td>
<td>Modern Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 366</td>
<td>The Modern Print</td>
<td></td>
</tr>
<tr>
<td>ARTH 367</td>
<td>Contemporary Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 368</td>
<td>American Photography</td>
<td></td>
</tr>
<tr>
<td>ARTH 375</td>
<td>Urban Design Perspectives</td>
<td></td>
</tr>
<tr>
<td>ARTH 469</td>
<td>Collage, Montage, Assemblage</td>
<td></td>
</tr>
<tr>
<td>Also Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 400</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 410</td>
<td>Museum Practice Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 411</td>
<td>Museum Practice Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>Art History Electives</td>
<td>Select any two upper-level Art History courses (except ARTH 399):</td>
<td>6</td>
</tr>
<tr>
<td>Cognates</td>
<td>Select one upper-level course from the following:</td>
<td>3</td>
</tr>
<tr>
<td>COMM 360</td>
<td>Social Media for PR</td>
<td></td>
</tr>
<tr>
<td>COMM 420</td>
<td>Critical Media Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td></td>
</tr>
<tr>
<td>JASS 330</td>
<td>Feature Writing</td>
<td></td>
</tr>
<tr>
<td>PSYC 4305</td>
<td>Psychology in the Workplace</td>
<td></td>
</tr>
</tbody>
</table>
OB 354  Behavior in Organization

Total Credit Hours  33

Portfolio Requirement
A portfolio is required for Art History (Track A) or Museum Studies (Track B). The portfolio must be approved by the faculty advisor and will consist of one paper from ARTH 400, one paper from ARTH 410, and one additional paper from another upper level ARTH course taken at UM-Dearborn. Students must also complete an exit interview questionnaire. See the Art History faculty advisor for more details.

Foreign Languages
Although competency in a foreign language is not required for the major, a reading proficiency in French and/or German is extremely important for anyone planning to pursue the study of Art History. Most graduate programs in Art History require at least two foreign languages.

Notes:
1. At least 15 of the 27 upper level hours in ARTH must be elected at UM-Dearborn.
2. ARTH 399 cannot be used in the major.

Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in art history (ARTH).

Astronomy

Minor or LIBS Concentration Only
A minor or concentration consists of 12 credit hours of upper-level courses from the following:

Gateway courses: Three (3) to six (6) credit hours from 300 level ASTR or PHYS 305.

Advanced courses: Six (6) to nine (9) credit hours from 400 level ASTR including up to 3 credit hours in independent study or directed research, ASTR 498 and/or ASTR 499 may be applied to the completion of the minor or concentration.

Behavioral Sciences

The major in Behavioral Sciences is an interdisciplinary program primarily encompassing the disciplines of anthropology, psychology, and sociology, as well as several courses from criminal justice studies, health policy studies and women and gender studies. It is designed as a general preparation for a career in human services such as social work, counseling, criminology, or prevention/treatment programs in mental health. The idea for combining the three primary fields is based on the belief that it is important for an individual who plans to work with people to understand human beings as individuals (psychologically) who function in groups (social psychologically) within a social context (sociologically) which varies across cultures (anthropologically). These disciplinary perspectives offer different but complementary views of people. In order to understand, predict, or influence human behavior, one needs some comprehension of how humans develop, the problems they confront, the organization or structure in which they function, and how and why these go awry. It is also critical to have some exposure to the methods employed by behavioral scientists and some actual experience in the working world of the human services.

To enroll in this program, a student must develop a list of courses which are appropriate for her/his career goals or interests and which satisfy the requirements listed below. This list should be prepared in consultation with, and approved by, the Behavioral Sciences advisor, Roger Loeb. The major encourages specific vocational tracks shaped to the student’s career goals. Specific career and appropriate course selection advice is available as follows: Administrative/Management (McKenna, Waung), Adulthood and Aging (Aronson, Setheruman, Whitehead), Children and Families (Aronson, Forsythe-Brown, Sethuram an, Sheldon), Community Organizations (Draus, Hymes, McKenna, Price, Reppond), Clinical Counseling (Chatkoff, Leonard, Loeb, Siefert, Wrobel), Health (Chatkoff, Draus, McAuslan, Martin, Straub), Individuals in Society (Brainer, Draus, Forsythe-Brown, Price).

Prerequisites to the Major
The major requires the student to take three introductory courses, one in each of the primary disciplines:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 101</td>
<td>Introduction to Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>or ANTH 202</td>
<td>World Cultures</td>
<td></td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology (PSYC 170 or</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSYC 171 prior to Fall 2014)</td>
<td></td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 201</td>
<td>Contemporary Social Problems</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours  9

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)
Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 470</td>
<td>Doing Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Lab in Developmental Psych</td>
<td></td>
</tr>
<tr>
<td>PSYC 425</td>
<td>Lab in Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 4445</td>
<td>Personality Assessment Lab</td>
<td></td>
</tr>
<tr>
<td>SOC 410</td>
<td>Quantitative Research</td>
<td></td>
</tr>
<tr>
<td>SOC 411</td>
<td>Program Evaluation</td>
<td></td>
</tr>
<tr>
<td>SOC 413</td>
<td>Qualitative Research</td>
<td></td>
</tr>
<tr>
<td>ANTH 482</td>
<td>Psychological Anthropology</td>
<td></td>
</tr>
<tr>
<td>PSYC 440</td>
<td>Abnormal Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 441</td>
<td>Intro to Clinical Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 442</td>
<td>Child Psychopathology</td>
<td></td>
</tr>
<tr>
<td>PSYC 450</td>
<td>Personality Theory</td>
<td></td>
</tr>
<tr>
<td>SOC 436</td>
<td>Personality and Society</td>
<td></td>
</tr>
<tr>
<td>SOC 465</td>
<td>Deviant Behavior/Soc Disorganiz</td>
<td></td>
</tr>
<tr>
<td>ANTH 415</td>
<td>Nutrition and Health</td>
<td></td>
</tr>
<tr>
<td>PSYC 300</td>
<td>Life-Span Developmental Psych</td>
<td></td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Psych of Infant Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 302</td>
<td>Psych of Child Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 315</td>
<td>Personality Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 407</td>
<td>Psychology of Adolescence</td>
<td></td>
</tr>
<tr>
<td>PSYC 412</td>
<td>Psychology of Aging</td>
<td></td>
</tr>
<tr>
<td>SOC 426</td>
<td>Society and Aging</td>
<td></td>
</tr>
<tr>
<td>SOC 445</td>
<td>The Family</td>
<td></td>
</tr>
<tr>
<td>ANTH 325</td>
<td>Anth of Health and Environment</td>
<td></td>
</tr>
<tr>
<td>ANTH 409</td>
<td>Human Body, Growth &amp; Health</td>
<td></td>
</tr>
<tr>
<td>ANTH 430</td>
<td>Medical Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 435</td>
<td>Human Genetics</td>
<td></td>
</tr>
<tr>
<td>ANTH 459</td>
<td>Human Osteology</td>
<td></td>
</tr>
<tr>
<td>HPS 336</td>
<td>Perspectives in Women's Health</td>
<td></td>
</tr>
<tr>
<td>HPS 412</td>
<td>Principles of Epidemiology</td>
<td></td>
</tr>
<tr>
<td>HPS 430</td>
<td>Health Behavior &amp; Health Educ</td>
<td></td>
</tr>
<tr>
<td>HPS 435</td>
<td>Obesity and the Lifecourse</td>
<td></td>
</tr>
<tr>
<td>PSYC 446</td>
<td>Human Sexual Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 455</td>
<td>Health Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 440</td>
<td>Medical Sociology</td>
<td></td>
</tr>
</tbody>
</table>

Gender (CAGR): Select one course from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 303</td>
<td>Intro To Women's &amp; Gender Stud</td>
<td></td>
</tr>
<tr>
<td>ANTH 412</td>
<td>Men and Masculinities</td>
<td></td>
</tr>
<tr>
<td>ANTH 481</td>
<td>Gender and Globalization</td>
<td></td>
</tr>
<tr>
<td>HPS 336</td>
<td>Perspectives in Women's Health</td>
<td></td>
</tr>
<tr>
<td>PSYC 405</td>
<td>Gender Roles</td>
<td></td>
</tr>
<tr>
<td>SOC 366</td>
<td>Sexualities, Genders, &amp; Bodies</td>
<td></td>
</tr>
<tr>
<td>SOC 409</td>
<td>Feminist Theories</td>
<td></td>
</tr>
<tr>
<td>SOC 461</td>
<td>Cops &amp; Cons: Women in Prison</td>
<td></td>
</tr>
</tbody>
</table>

Social Class/Economics (CACE): Select one course from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 376</td>
<td>Power &amp; Privilege in SE Mich</td>
<td></td>
</tr>
<tr>
<td>SOC 350</td>
<td>Poverty and Inequality</td>
<td></td>
</tr>
<tr>
<td>SOC 423</td>
<td>American Social Classes</td>
<td></td>
</tr>
<tr>
<td>SOC 435</td>
<td>Urban Sociology</td>
<td></td>
</tr>
<tr>
<td>SOC 450</td>
<td>Political Sociology</td>
<td></td>
</tr>
<tr>
<td>SOC 477</td>
<td>Social Welfare</td>
<td></td>
</tr>
</tbody>
</table>

Race/Ethnicity/Culture (CARE): Select one course from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 340</td>
<td>Race and Evolution</td>
<td></td>
</tr>
<tr>
<td>ANTH 370</td>
<td>Indians of North America</td>
<td></td>
</tr>
<tr>
<td>ANTH 371</td>
<td>African Exp in the Americas</td>
<td></td>
</tr>
<tr>
<td>ANTH 372</td>
<td>Anthropology of Latin America</td>
<td></td>
</tr>
<tr>
<td>ANTH 373</td>
<td>Anth Pers on the Middle East</td>
<td></td>
</tr>
<tr>
<td>ANTH 420</td>
<td>Kinship and Marriage</td>
<td></td>
</tr>
<tr>
<td>ANTH 421</td>
<td>Education and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>ANTH 440</td>
<td>Religion and Culture</td>
<td></td>
</tr>
<tr>
<td>PSYC 322</td>
<td>Psychology of Prejudice</td>
<td></td>
</tr>
<tr>
<td>PSYC 3955</td>
<td>Diversity and the Workplace</td>
<td></td>
</tr>
<tr>
<td>SOC 403</td>
<td>Minority Groups</td>
<td></td>
</tr>
<tr>
<td>SOC 449</td>
<td>Black Family in Contemp Amer</td>
<td></td>
</tr>
<tr>
<td>SOC 455</td>
<td>Sociology of Religion</td>
<td></td>
</tr>
<tr>
<td>SOC 4045</td>
<td>Dissed: Differ, Power, Discrim</td>
<td></td>
</tr>
</tbody>
</table>

Groups and Interpersonal Relationships (CAGT): Select one course from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 320</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 322</td>
<td>Psychology of Prejudice</td>
<td></td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Psvc of Interpersonal Relation</td>
<td></td>
</tr>
<tr>
<td>PSYC 421</td>
<td>Group Processes</td>
<td></td>
</tr>
<tr>
<td>PSYC 3955</td>
<td>Diversity and the Workplace</td>
<td></td>
</tr>
<tr>
<td>SOC 446</td>
<td>Marriage and Family Problems</td>
<td></td>
</tr>
<tr>
<td>SOC 447</td>
<td>Family Violence</td>
<td></td>
</tr>
<tr>
<td>SOC 451</td>
<td>Family, Sexuality, Rights</td>
<td></td>
</tr>
<tr>
<td>SOC 4045</td>
<td>Dissed: Differ, Power, Discrim</td>
<td></td>
</tr>
</tbody>
</table>

Societal Issues (CASI): Select one course from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 490</td>
<td>Human Body, Growth &amp; Health</td>
<td></td>
</tr>
<tr>
<td>ANTH 430</td>
<td>Medical Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 435</td>
<td>Human Genetics</td>
<td></td>
</tr>
</tbody>
</table>
The study of Behavioral and Biological Sciences investigates the intersections between biochemistry, psychology, genetics, neurobiology, behavior, immunology and anthropology. Students choosing this major will learn the foundations of both biological and psychological sciences as they apply to the study of human and animal behavior, as well as ethical considerations and implications of research. The student experience will include a selection of lectures and laboratory courses to develop foundational understanding, hands-on experimental understanding and critical thinking skills. Students trained in these areas will be prepared for business and research positions, for pursuing advanced degrees in medical school, pharmacy or graduate programs and will contribute in the following areas:

- Health and wellness, making a direct and significant impact in areas in which citizens have received “poor marks.”
- Health and the environment, indirectly, by working in research and within industry to change manufacturing processes and improve products.
- Leadership in business, industry and politics.
- K-12 education through service learning and outreach.

**Behavioral and Biological Sciences**

Not counted in the minimum 40 hrs. required for the major.

**PRE-MAJOR Requirements-Required courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
<td>8</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
<td>8</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
<td>8</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
<td>8</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
<td>8</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
<td>8</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
<td>8</td>
</tr>
</tbody>
</table>

Major Requirements
Minimum of 40 credit hours upper level required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130 &amp; BIOL 140</td>
<td>Intro Org and Environ Biology and Intro Molec &amp; Cellular Biology</td>
<td>8</td>
</tr>
</tbody>
</table>

Biochemistry
Biochemistry bridges the biological sciences and chemistry. This degree program is thus designed to provide the student with an understanding of the structural and functional relationships between the chemical constituents of cells and their role in life processes. The requirements for the major include courses in biological sciences and chemistry, and appropriate courses in mathematics and physics. The degree in biochemistry prepares a student for careers in teaching, medicine, and research in industry or academia.

Prerequisites to the Major
A solid background in mathematics is essential to success in any of the scientific disciplines. Incoming students who intend to choose a major in Biochemistry should have completed at least three years of high school mathematics. First year students should plan to enroll in MATH 105, MATH 115 or MATH 116 based on the results of their math placement tests. The CHEM 134 and CHEM 136 or CHEM 144 and CHEM 146 sequence is a prerequisite to many other courses in the Natural Sciences Department; students should complete this sequence as early as possible.
Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCHM 470</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BCHM 471</td>
<td>Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>BCHM 472</td>
<td>Biochemistry Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>BCHM 473</td>
<td>Biochemistry Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>BCHM 474</td>
<td>Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCHM 496</td>
<td>Complex Systems (Biochemistry Capstone)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 368</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
</tbody>
</table>

Related sciences
Select a minimum of 7 credit hours in upper Biochemistry (BCHM), Biology (BIOL) or Chemistry (CHEM).¹
Computational Skills (minimum of 3 credit hours). An upper level course in MATH (excluding MATH 385, MATH 386, MATH 387), STAT or CIS:

Total Credit Hours 32

¹ At least one credit must be a laboratory (either 4 credit lecture with lab, or stand-alone lab course, or a maximum of one credit hour of independent research (BCHM 495 or BCHM 499; or BIOL 495 or BIOL 499; or CHEM 495 or CHEM 499)

Notes:
1. A maximum of 65 hrs. in BCHM, BIOL, CHEM may count towards the 120 hours for degree.
2. At least 12 of the 30 upper level hours must be elected at UM-Dearborn.
3. A maximum of 6 hrs. of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 hours required to graduate.

Honors Degree in Biochemistry
To qualify for this honor, a student must maintain an overall grade point average of 3.5. The honors degree candidate must take six credit hours of independent study under BCHM 495, BCHM 498 or BCHM 499. Such a study will culminate in an oral and/or written presentation of the results. The Biochemistry Program Committee will evaluate the student’s presentation. The intention to pursue an Honors Degree must be declared with the academic advisor no later than two semesters prior to graduation.

Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in biochemistry (BCHM). A maximum of 3 credit hours of independent study/research (BCHM 495, BCHM 498, or BCHM 499) can be applied to meet the requirements of the minor or concentration.

Biological Sciences
Biology is an extensive field that covers biochemistry, molecular biology, cell biology, microbiology, genetics, anatomy, physiology, embryology, ecology, evolution, field biology, and animal behavior. The program is recommended for students who wish to study biology as part of an
undergraduate liberal arts degree, to prepare for graduate study in biology or any of the health professions, or to study for a secondary teaching certificate in biology.

**Major Prerequisite Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Gen Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 146</td>
<td>General Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 226</td>
<td>and Organic Chemistry II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 227</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PHYS 126</td>
<td>and Introductory Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PHYS 151</td>
<td>and General Physics II</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Calc I for Biology &amp; Life Sci</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 114</td>
<td>Calc II for Biology &amp; Life Sci</td>
<td>3-4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>STAT 301</td>
<td>Biostatistics I</td>
<td></td>
</tr>
<tr>
<td>STAT 326</td>
<td>Applied Statistics II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 39-40

Mathematics and chemistry are essential to success in biology and should be taken as early as possible. Chemistry and mathematics course serve as prerequisites for many biology courses.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humansities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Major Requirements**

30 credit hours of 300/400; 3000/4000 level biological sciences (BIOL) courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 306</td>
<td>General Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>Anatomy and Physiology IIB</td>
<td></td>
</tr>
<tr>
<td>BIOL 335</td>
<td>Plant Physiology</td>
<td></td>
</tr>
</tbody>
</table>

**Evolution:**

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 404</td>
<td>Comparative Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 405</td>
<td>Anatomy and Physiology IIB</td>
<td></td>
</tr>
<tr>
<td>BIOL 433</td>
<td>Plant Physiology</td>
<td></td>
</tr>
</tbody>
</table>

**Physiology:**

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 402</td>
<td>Physiology of Excitable Cells</td>
<td></td>
</tr>
<tr>
<td>BIOL 404</td>
<td>Mech. Chronic Human Disease</td>
<td></td>
</tr>
<tr>
<td>BIOL 405</td>
<td>Applied &amp; Environ Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Vertebrates 1</td>
<td></td>
</tr>
<tr>
<td>BIOL 419</td>
<td>Behavior and Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 422</td>
<td>Conservation Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 452</td>
<td>Med &amp; Env Toxicology</td>
<td></td>
</tr>
<tr>
<td>BIOL 476</td>
<td>Cancer Cell Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 491</td>
<td>Capstone Course in Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 492</td>
<td>Capstone Research Experience</td>
<td></td>
</tr>
<tr>
<td>BIOL 493</td>
<td>Capstone Teaching Experience</td>
<td></td>
</tr>
</tbody>
</table>

**Capstone Experience (CACY)**

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 403</td>
<td>Comparative Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 404</td>
<td>Mech. Chronic Human Disease</td>
<td></td>
</tr>
<tr>
<td>BIOL 405</td>
<td>Applied &amp; Environ Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Vertebrates 1</td>
<td></td>
</tr>
<tr>
<td>BIOL 419</td>
<td>Behavior and Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 424</td>
<td>Biology of Spiders</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Upper Level (300+) Biology Courses (BIOL)**

Students with interests in specific areas of biology are encouraged to consider the following options as they select the additional upper level (300+) biology courses needed to complete the major:

**Animal Biology and Behavior:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 303</td>
<td>Comparative Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Field Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 324</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>BIOL 353</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Vertebrates</td>
<td></td>
</tr>
<tr>
<td>BIOL 419</td>
<td>Behavior and Evolution</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credit Hours: 39-40**
### Behavioral Biology
- BIOL 315 Aquatic Ecosystems
- BIOL 320 Field Biology
- BIOL 361 Population Genetics & Evol Lab
- BIOL 337 Plant Ecology
- BIOL 405 Applied & Environ Microbiology
- BIOL 414 Limnology
- BIOL 419 Behavior and Evolution

### Microbiology
- BIOL 381 Biotechnology & Bioprocessing
- BIOL 385 Microbiology
- BIOL 405 Applied & Environ Microbiology
- BIOL 406 Microbial Genetics
- BIOL 430 Medical Virology
- BIOL 440 Micro Genetics & Physi Lab
- BIOL 450 Virology
- BIOL 459 Pathogenic Microbiology
- BIOL 485 Physiology of Micro-organisms

### Molecular Biology
- BIOL 301 Cell Biology
- BIOL 370 Principles of Biochemistry
- BIOL 381 Biotechnology & Bioprocessing
- BIOL 470 Biochemistry I
- BIOL 471 Biochemistry II
- BIOL 472 Biochemistry Lab I
- BIOL 473 Biochemistry Laboratory II
- BIOL 474 Molecular Biology

### Plant Biology
- BIOL 320 Field Biology
- BIOL 333 Plant Biology
- BIOL 335 Plant Physiology
- BIOL 337 Plant Ecology

### Pharmacy
- BIOL 305 Anatomy and Physiology IIB
- BIOL 357 Human Physiology
- BIOL 370 Principles of Biochemistry
- BIOL 385 Microbiology

### Pre-Medicine
- BIOL 301 Cell Biology
- BIOL 303 Comparative Animal Physiology
- BIOL 305 Anatomy and Physiology IIB
- BIOL 310 Histology
- BIOL 311 Embryology
- BIOL 357 Human Physiology
- BIOL 370 Principles of Biochemistry
- BIOL 385 Microbiology
- BIOL 404 Mech. Chronic Human Disease
- BIOL 412 Vertebrates
- BIOL 430 Medical Virology
- BIOL 450 Virology
- BIOL 452 Med & Env Toxicology

### Immunology
- BIOL 455 Immunology
- BIOL 459 Pathogenic Microbiology

1. BIOL 312 prior to Fall '15
2. To total a minimum of 30 credit hours.

### Notes:
1. A maximum of 6 credit hours in BIOL 492, BIOL 493, BIOL 495, BIOL 497, BIOL 498 and BIOL 499 can be applied toward the 30 credit major requirement.
2. A maximum of 50 hours in biological sciences courses may be applied toward the 120-credit-hour total required for graduation.
3. In the 30 credit hours required for the major, students may use either BIOL 370/BCHM 370/CHEM 370 or BIOL 470/BCHM 470/CHEM 470 and/or CHEM 471.
4. At least 15 of the 30 upper level hours required in the BIOL major must be elected at UM-Dearborn.
5. STAT 326 requires STAT 325 as a prerequisite.

### Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in biological sciences (BIOL). Note that all BIOL courses include prerequisites in biology and some include prerequisites in chemistry or mathematics.

### Business Studies as a Secondary Major
The Business Studies major is an optional second major for students pursuing a Bachelor of Arts or Bachelor of Science degree through the College of Arts, Sciences, and Letters (CASL).

The Business Studies major (BST) complements the critical thinking and acquired knowledge gained through a liberal arts and sciences education with foundational courses in business to develop the necessary leadership and analytical skills for careers in management related fields.

The BST graduate will acquire and possess a broad range of understanding, knowledge, and quantitative skills necessary for attaining a leadership role in business, education, community organizations, and government. Key to the BST is the comprehensive liberal arts and sciences education that provides a strong foundation in thinking creatively, seeing the world through a multi-perspective lens, and acquiring a broad based of knowledge, and an understanding of diverse cultures and literary works.

The Business Studies major is open to non-College of Business students and must be pursued as a second major in conjunction with the primary major in CASL.

### Major Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>
Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>MKTG Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Plus select one course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS 300</td>
<td>Quantitative Model and Anlys I</td>
<td>3</td>
</tr>
</tbody>
</table>

or DS 301 Intro Business Statistics

ECON 305 Economic Statistics

MATH 325 Probability

PSYC 381 Prin of Stat and Exper Design

Total Credit Hours 10

Plus one of the following tracks.

Total Credit Hours 9

Some courses listed here may have additional prerequisites that could add to the total credit hours needed.

Must declare one of the following concentrations: General Business, Communications, Economics, Entrepreneurship, or Psychology. Requirements for each concentration are outlined below:

General Business Concentration

Three courses from any 300 or 400 level College of Business (COB) course (Excluding BA 300, BPS 451, and any BI course). Courses must be from at least two different disciplines.

Communications Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 340</td>
<td>Professional Communication</td>
<td>3</td>
</tr>
<tr>
<td>or BA 330</td>
<td>Managerial Communication</td>
<td></td>
</tr>
</tbody>
</table>

Plus select two courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 220</td>
<td>Intro to Media &amp; Culture</td>
<td>3</td>
</tr>
<tr>
<td>COMM 260</td>
<td>Public Relations Principles</td>
<td>3</td>
</tr>
<tr>
<td>COMM 300</td>
<td>Communication Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>COMM 360</td>
<td>Social Media for PR</td>
<td>3</td>
</tr>
<tr>
<td>COMM 366</td>
<td>Public Comm and Culture Studies</td>
<td>3</td>
</tr>
<tr>
<td>COMM 420</td>
<td>Critical Media Studies</td>
<td>3</td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td>3</td>
</tr>
<tr>
<td>MKT 458</td>
<td>Advertising</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Economics Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 302</td>
<td>Intermediate Microeconomics</td>
<td></td>
</tr>
<tr>
<td>BE 403</td>
<td>Business Conditions Analysis</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 301</td>
<td>Intermediate Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 311</td>
<td>Money and Banking</td>
<td>3</td>
</tr>
<tr>
<td>or FIN 443</td>
<td>Com Bank: Funcn and Operatns</td>
<td></td>
</tr>
<tr>
<td>ECON 321</td>
<td>Labor in the American Economy</td>
<td>3</td>
</tr>
<tr>
<td>ECON 331</td>
<td>Industrial Organization</td>
<td>3</td>
</tr>
<tr>
<td>ECON 335</td>
<td>Experimental Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 433</td>
<td>Antitrust and Regulation</td>
<td>3</td>
</tr>
<tr>
<td>ECON 438</td>
<td>Beh Econ for Business &amp; Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECON 447</td>
<td>International Finance</td>
<td>3</td>
</tr>
<tr>
<td>ECON 448</td>
<td>International Trade</td>
<td>3</td>
</tr>
<tr>
<td>ECON 4021</td>
<td>Economics of the Labor Sector</td>
<td>3</td>
</tr>
<tr>
<td>IB 441</td>
<td>International Financial Mgmt</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three courses from the following:

Total Credit Hours 9
Entrepreneurship Concentration
Three courses: ENT 400, and ENT 401, and ENT 402.

Psychology Concentration

Select three courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td>3</td>
</tr>
<tr>
<td>MKT 382</td>
<td>Understanding Customers</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 363</td>
<td>Cognitive Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 3955</td>
<td>Diversity and the Workplace</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 4305</td>
<td>Psychology in the Workplace</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 464</td>
<td>Applied Cognitive Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Notes:
1. At least 15 of the 30 credits required in the major must be elected at UM-Dearborn.
2. Students not enrolled in the College of Business BBA Program cannot elect more than 30 upper-level (courses numbered 300 and above) credit hours offered by the College of Business.

Chemistry (ACS Certified)

The major program in chemistry at the UM-Dearborn is fully accredited by the American Chemical Society (ACS). This program is designed primarily for students who intend to go into Chemistry as a profession or who plan to continue their studies at the graduate level. A student may earn a BS degree in chemistry by completing the prerequisite, major, and cognate courses and by fulfilling the Dearborn Discovery Core (DDC) and graduation requirements.

Prerequisites to the Major

A solid background in mathematics is essential to success in any of the scientific disciplines. Incoming students who intend to major in Chemistry should have completed at least three years of high school mathematics. First year students should plan to enroll in MATH 105, MATH 115, or MATH 116 based on the results of their math placement tests. The CHEM 134 and CHEM 136 or CHEM 144 and CHEM 146 sequence is a prerequisite to many other courses in the Natural Sciences Department; students should complete this sequence as soon as possible.

Chemistry majors must complete the following 40 credit hours of prerequisite courses. These courses should be completed early in the student’s four-year curriculum.

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 136</td>
<td>and General Chemistry IIA (OR)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 146</td>
<td>and General Chemistry IIB</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credit Hours 8

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GEB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
</tbody>
</table>
Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Courses</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 303</td>
<td>Inorganic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 368</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 370</td>
<td>Principles of Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>Inorganic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 447</td>
<td>Instrumental Methods of Analys</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 450</td>
<td>Adv Org Syn &amp; Character Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 452</td>
<td>Adv Inorg Synth &amp; Char Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 469</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 481</td>
<td>Physicochemical Measurements</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 493</td>
<td>Presentations in Chemistry</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Elective Courses</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 elective credits from:</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 348</td>
<td>Environmental Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 352</td>
<td>Introduction to Toxicology</td>
<td></td>
</tr>
<tr>
<td>CHEM 390</td>
<td>Current Topics in Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 426</td>
<td>Advanced Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 430</td>
<td>Bioinorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 435</td>
<td>Green Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 436</td>
<td>Polymer Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 437</td>
<td>Nano-Biotechnology</td>
<td></td>
</tr>
<tr>
<td>CHEM 472</td>
<td>Biochemistry Laboratory I</td>
<td></td>
</tr>
<tr>
<td>CHEM 473</td>
<td>Biochemistry Laboratory II</td>
<td></td>
</tr>
<tr>
<td>CHEM 490</td>
<td>Topics in Chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Cognates</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students must complete at least six credit</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>hours upper level (300+) from: Biology (BIOL),</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biochemistry (BCHM), Environmental Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ESCI), Geology (GEOL), Mathematics (MATH),</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microbiology (MICR), Statistics (STAT), or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics (PHYS). The six credit hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>need not be from a single discipline.</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 37

1. CHEM 493 is a capstone portfolio course that requires data from various courses throughout the CACS curriculum. Students should be aware of the benchmarks of the CHEM 493 course so that requirements will be completed by their final semester when they will register for CHEM 493.

2. Excluding MATH 385, MATH 386, MATH 387, MATH 391, MATH 442, MATH 443, MATH 444, MATH 445, MATH 446, MATH 447, MATH 449, MATH 486. Only one of STAT 301 or STAT 325.

Notes:

1. A maximum of 44 hrs. in CHEM (excluding CHEM 134, CHEM 136, CHEM 144, CHEM 146) may count in the 120 required for graduation.

2. At least 12 of the 31 upper level hours in CHEM must be elected at UM-Dearborn.

3. CHEM 470 and CHEM 471 can be used in place of CHEM 370, however, CHEM 470 alone cannot be used for this substitution.

Students cannot take both CHEM 370 and CHEM 470 or CHEM 471 or any combination to fulfill major, cognate or minor requirements.

4. A maximum of 6 hrs. of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 hours required to graduate.

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level courses in chemistry (CHEM). A maximum of one credit hour of independent study/research may be used to fulfill the requirement (CHEM 495, CHEM 498, CHEM 499)

Chemistry (Instructional track)

The Chemistry/Instructional Track major is an interdisciplinary program for students who wish to teach chemistry and other science courses at the secondary school level. The program meets State of Michigan requirements as well as American Chemical Society (ASC) recommendations for teaching chemistry in high school. A student may earn a BS degree in Chemistry and qualify for a Michigan Provisional Secondary Teaching Certificate by completing the professional sequence of education courses including one semester of directed teaching; by completing the prerequisite, major, cognate requirements and by fulfilling the Dearborn Discovery Core (DDC) graduation requirements. Students must also complete at least 100 credit hours of non-education courses; have a minimum 2.75 overall GPA; have a 2.75 or better GPA in their teaching major and in education courses; and have a 2.75 in their teaching minor. Students must take the Michigan Test for Teacher Certification (MTTC) prior to being recommended for a Michigan teaching certificate.

Major Prerequisites

Chemistry/Instructional Track majors must complete 40 credit hours of prerequisite courses. These courses should be completed early in the student's curriculum.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Select one of the following:</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 136</td>
<td>and General Chemistry IIA (OR)</td>
<td></td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 146</td>
<td>and General Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or BIOL 140 Intro Molec &amp; Cellular Biology</td>
<td></td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 215</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or MATH 205 Calc III for Engin Students</td>
<td></td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; PHYS 151</td>
<td>and General Physics II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 40

1. Students interested in biochemistry should elect BIOL 140; students interested in environmental chemistry should elect BIOL 130.
The physics prerequisite may also be satisfied by completing PHYS 125 and PHYS 126 and an upper-level physics course, such as PHYS 305. The upper level PHYS course used in this substitution cannot be used toward the cognate requirement.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

**Major Requirements**

Students must complete 20 credit hours of upper-level chemistry courses as indicated:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 303</td>
<td>Inorganic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 368</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHEM 403 | Inorganic Chemistry II          |
CHEM 447 | Instrumental Methods of Analy  |
CHEM 469 | Physical Chemistry II           |

Select one laboratory course from the following: 1-2

CHEM 450 | Adv Org Syn & Character Lab   |
CHEM 452 | Adv Inorg Synth & Char Lab    |
CHEM 481 | Physicochemical Measurements  |

**Electives**

Select additional courses to bring the upper-level chemistry total to 20 hours, from the following:

CHEM 348 | Environmental Chemistry       |
CHEM 349 | Environmental Chem Laboratory |
CHEM 352 | Introduction to Toxicology    |
CHEM 370 | Principles of Biochemistry    |
CHEM 390 | Current Topics in Chemistry   |
CHEM 403 | Inorganic Chemistry II        |
CHEM 426 | Advanced Organic Chemistry    |
CHEM 435 | Green Chemistry               |
CHEM 436 | Polymer Chemistry             |
CHEM 447 | Instrumental Methods of Analy |
CHEM 450 | Adv Org Syn & Character Lab   |
CHEM 452 | Adv Inorg Synth & Char Lab    |
CHEM 469 | Physical Chemistry II         |
CHEM 481 | Physicochemical Measurements  |
CHEM 497 | Seminar in Chemistry          |

**Cognates**

Chemistry/Instructional Track majors must complete at least six credit hours of courses numbered 300 or above offered in Biochemistry (BCHM), Biological Sciences (BIOL), Environmental Science (ESCI), Geology (GEOL), Mathematics (MATH), Microbiology (MICR), Physics (PHYS), or Statistics (STAT). The six credit hours need not be from a single discipline. 1

<table>
<thead>
<tr>
<th>Total Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-22</td>
</tr>
</tbody>
</table>

1 Excluding MATH 385, MATH 386, MATH 387, MATH 442, MATH 443, MATH 444, MATH 447, MATH 448, MATH 486.

**Notes:**

1. A maximum of 44 hrs. in CHEM (excluding CHEM 134, CHEM 136, CHEM 144, CHEM 146) may count in the 120 required for graduation.
2. At least 12 of the 20 upper level hours in CHEM must be elected at UM-Dearborn.
3. CHEM 470 and 471 can be used in place of CHEM 370, however, CHEM 470 alone cannot be used for this substitution. Students cannot take both CHEM 370 and CHEM 470 or CHEM 471 or any combination to fulfill major, cognate or minor requirements.
4. The Chemistry Instructional major is open only to students who have been admitted to the College of Education, Health, and Human Services Secondary Certification Program.
5. A maximum of 6 hrs. of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 hours required to graduate.
Education Requirements
Please see the College of Education, Health, and Human Services (CEHHS) section of this Catalog for secondary certification requirements. (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification)

Requirements for the Teaching Minor
In order to obtain teaching certification, a student must complete the requirements for a teaching minor. Courses used to satisfy requirements for the minor and prerequisite may not be used to satisfy cognate or major requirements.

Teaching minors are available in mathematics, physical science, physics, and biology. Students should consult the College of Education, Health, and Human Services section in this Catalog for coursework requirements to complete the teaching minor (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification).

Communication
The communication major emphasizes three interrelated areas of public relations and organizational cultures, public advocacy and democratic cultures, and intercultural/international communication and global cultures. Each area has a practical focus in which written and oral communication skills and interpersonal awareness are developed; in addition, the communication degree is designed to emphasize the intellectual, historical, and critical perspectives emerging from the intersections between and among these larger areas of communication inquiry. This “triadic” approach presents communication as a challenging, creative skill to be mastered, and, moreover, as an integral process through which democratic and professional possibilities are shaped and social realities constructed.

A prominent emphasis on culture and community connects disciplinary work in communication with the integrative understanding of people’s needs and interests that characterizes the best work in anthropology, sociology, psychology, economics, and political science. The program combines this strong theoretical foundation with the practical skills training to prepare students for any number of opportunities in our globalized multicultural and highly technological environment.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEE 101</td>
<td>Principles of Speech Comm</td>
<td>3</td>
</tr>
<tr>
<td>COMM 220</td>
<td>Intro to Media &amp; Culture</td>
<td>3</td>
</tr>
<tr>
<td>COMM 366</td>
<td>Public Comm and Culture Stdies</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Core Area I
Select 2 courses from each of the following areas:

Public Relations and Organizational Culture Focus (CAPR). Two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 260</td>
<td>Public Relations Principles</td>
<td></td>
</tr>
<tr>
<td>COMM 300</td>
<td>Communication Research Methods</td>
<td></td>
</tr>
<tr>
<td>COMM 340</td>
<td>Professional Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 360</td>
<td>Social Media for PR</td>
<td></td>
</tr>
<tr>
<td>COMM 365</td>
<td>Health Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 390</td>
<td>Topics in Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 450</td>
<td>Principle of Organization Comm</td>
<td></td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td></td>
</tr>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td></td>
</tr>
</tbody>
</table>

International/Intercultural Communication and Global Culture Focus (CAIG). Two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 300</td>
<td>Communication Research Methods</td>
<td></td>
</tr>
<tr>
<td>COMM 390</td>
<td>Topics in Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 420</td>
<td>Critical Media Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 430</td>
<td>International Communications</td>
<td></td>
</tr>
<tr>
<td>COMM 455</td>
<td>Gender and Media Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 481</td>
<td>Gender and Globalization</td>
<td></td>
</tr>
<tr>
<td>SPEE 310</td>
<td>Interpersonal Communication</td>
<td></td>
</tr>
</tbody>
</table>
Public Advocacy and Democratic Culture Focus (CAPA). Two courses from:

- COMM 306 Comparat. American Identities
- COMM 365 Health Communication
- COMM 420 Critical Media Studies
- COMM 455 Gender and Media Studies
- JASS 380 History of American Journalism
- SPEE 320 Public Argument and Advocacy
- SPEE 330 Argumentation and Debate
- SPEE 340 Persuasion & Social Movements
- SPEE 340 Small Group Communication
- SPEE 442 20th Century Public Argument

Focus Area Specialization/Production Specialization

The remaining hours can be taken in either Option A or Option B below:

Option A – Focus Area Specialization:
Select two additional courses from any of the focus areas above.

Option B – Media Tools Specialization (CAMP):
Select two courses in the area of media production:
- JASS 303 Media Design & Animation
- JASS 3015 Advanced Reporting
- JASS 307 Copy Editing
- JASS 312 Media Performance
- JASS 315 Media Productn for Metro Comm
- JASS 330 Feature Writing
- JASS 331 Online Reporting,Rsrch,Writing
- JASS 345 Audio Production
- JASS 350 Digital Film & Television
- JASS 401 Interpretive Journalism
- JASS 402 Investigative Reporting
- JASS 405 New and Emerging Media
- JASS 406 History & Theory of Documentary
- JASS 410 Advanced Media Production
- JASS 423 Comm Design for Web & Mobile
- JASS 467 Script-Writing Workshop

Cognate

Must be an upper level course from any CASL discipline (excluding Communication (COMM) and Speech (SPEE), and MATH 385, MATH 386, MATH 387).

Required Experiential Education

- Humanities Internship, Co-op, or Senior Thesis

Total Credit Hours

Notes:

1. A maximum of 63 hrs of COMM and SPEE may count toward the 120 hrs required for graduation.
2. At least 15 of the 27 upper level hours in the COMM major must be elected at UM-D.

Minor in Communication

A minor in Communication consists of 12 credit hours of approved upper-level courses in COMM/SPEE. In addition, students must complete one of the prerequisites listed below.

Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 220</td>
<td>Intro to Media &amp; Culture</td>
<td>3</td>
</tr>
<tr>
<td>or SPEE 101</td>
<td>Principles of Speech Comm</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Courses for the Minor

Public Relations & Organizational Culture

Choose one course from (CAUL): 3

- COMM 300 Communication Research Methods
- COMM 340 Professional Communication
- COMM 360 Social Media for PR
- COMM 365 Health Communication
- COMM 390 Topics in Communication
- COMM 450 Principle of Organization Comm
- COMM 460 Public Relations Campaigns
- COMM 477 Prof Communication Ethics

International/Intercultural Communication & Global Culture

Choose one course from (CAIG): 3

- COMM 300 Communication Research Methods
- COMM 390 Topics in Communication
- COMM 420 Critical Media Studies
- COMM 430 International Communications
- COMM 455 Gender and Media Studies
- COMM 481 Gender and Globalization
- SPEE 310 Interpersonal Communication

Public Advocacy & Democratic Culture

Choose one course from (CAAD): 3

- COMM 306 Comparat. American Identities
Community Change

COMM 365  Health Communication
COMM 420  Critical Media Studies
COMM 455  Gender and Media Studies
JASS 380  History of American Journalism
SPEE 320  Public Argument and Advocacy
SPEE 330  Argumentation and Debate
SPEE 340  Persuasion & Social Movements
SPEE 430  Small Group Communication
SPEE 442  20th Century Public Argument

Select one additional course from any of the core areas above: (Public Relations & Organizational Culture (CAUL); International/Intercultural Communication & Global Culture (CAIG); Public Advocacy & Democratic Culture (CAAD).

Communication concentration for LIBS majors:

Prerequisites: COMM 220 and SPEE 101

Minimum of 15 credit hours of upper level coursework in communication (COMM) and speech (SPEE).

At least one course must be SPEE upper level.

3 credit hours of HUM 485 (Internship) may count toward the 15 hours of upper level coursework.

Public Relations Certificate

The public relations certificate requires the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 260</td>
<td>Public Relations Principles</td>
<td>3</td>
</tr>
<tr>
<td>JASS 2015</td>
<td>Fundamentals of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>COMM 300</td>
<td>Communication Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>COMM 360</td>
<td>Social Media for PR</td>
<td>3</td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 18

Notes Regarding PR Certificate Program:

1. A minimum 2.0 cumulative GPA and a minimum of twelve earned hours completed at UM-Dearborn are required for admission to the program.
2. A maximum of nine credit hours may simultaneously count toward the PR certificate and toward the Communication major.
3. A maximum of two transfer courses (six credit hours) may count toward the PR program.
4. A minimum 2.0 GPA in the courses counting toward the PR certificate and minimum 2.0 cumulative GPA are required at the time of graduation and/or posting of the certificate.

Community Change

Minor or LIBS Concentration Only

A minimum of 18 credit hours of upper level coursework required from the following:

Comparative Literature

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level courses in comparative literature (COML).

Computer and Computational Mathematics

The courses in Computer and Computational Mathematics (CCM) develop skills in applying mathematical algorithms and scientific computing in real world situations.

Minor or LIBS Concentration Only

A minor or concentration consists of 12 hours of upper-level credit in courses specifically selected as CCM.

Cooperative Education Program

(not a field of concentration)

Cooperative Education is a nationally recognized educational plan that integrates academic study with paid, real world work experience.
UM-Dearborn cooperates with business, industry, government and other private and public agencies to offer work assignments related to students’ educational programs and career objectives.

Students may earn a maximum of 10 S/E credit hours through co-op work assignments of one to three credit hours. Students should be aware that applying for co-op does not guarantee job placement. Liberal arts students are advised to use curriculum electives to acquire the technical skills needed to improve their marketability and to avail themselves of career counseling available through the Career Services Office.

For eligibility information, contact the Cooperative Education Office, Room 285 Fairlane Center North (FCN), 313-593-5188.

Criminology and Criminal Justice

Criminology and Criminal Justice is a field that focuses on the study of criminal behavior and society’s response to it. The field draws upon the insights of the social and behavioral sciences, the physical sciences, statistics, and the humanities to illuminate the issues of maintaining social order in a constitutional democracy committed to individual freedom, equality, and justice. More specifically, the field focuses on the causes and prevention of criminal behavior. The criminal justice system is composed of the police agencies, prosecutors, the legal profession, the courts, and correctional agencies, among others. The system is part of a larger social system which invariably influences the effectiveness and fairness of our justice system. Criminal justice analyzes system responses to the changes in social values and law enforcement. The program in Criminology and Criminal Justice at UM-Dearborn prepares students for diverse careers in law, justice, public administration, policy analysis, public security, and for graduate work in the social and behavioral sciences.

Prerequisites:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 200</td>
<td>Intro to Criminal Justice</td>
<td>3</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 416</td>
<td>Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 468</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 482</td>
<td>Legal Ethics</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 478</td>
<td>Criminal Justice Internship</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 488</td>
<td>Criminal Procedure</td>
<td>3</td>
</tr>
</tbody>
</table>

One Class from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 363</td>
<td>Crim Justice Syst and Policy</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 480</td>
<td>Criminal Justice Theory</td>
<td></td>
</tr>
<tr>
<td>CRJ 489</td>
<td>Law, Crime, and Society</td>
<td></td>
</tr>
</tbody>
</table>

Special Topics in Criminal Justice (CAST)

Select two classes from the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 408</td>
<td>Police and the Community</td>
</tr>
<tr>
<td>CRJ 417</td>
<td>Crimmigration</td>
</tr>
<tr>
<td>CRJ 460</td>
<td>Law &amp; Culture</td>
</tr>
<tr>
<td>CRJ 466</td>
<td>Drugs, Alcohol, and Society</td>
</tr>
<tr>
<td>CRJ 467</td>
<td>Drugs, Crime, and Justice</td>
</tr>
<tr>
<td>CRJ 469</td>
<td>Juvenile Delinquency</td>
</tr>
<tr>
<td>CRJ 470</td>
<td>Current Issues in Crim Justice</td>
</tr>
<tr>
<td>CRJ 471</td>
<td>Comp Crim Justice Systems</td>
</tr>
<tr>
<td>CRJ 472</td>
<td>Correctional Systems</td>
</tr>
<tr>
<td>CRJ 473</td>
<td>Race, Crime and Justice</td>
</tr>
<tr>
<td>CRJ 474</td>
<td>Cyber Crimes</td>
</tr>
<tr>
<td>CRJ 475</td>
<td>Digital Evidence</td>
</tr>
<tr>
<td>CRJ 476</td>
<td>Inside Out Prison Exchange</td>
</tr>
<tr>
<td>CRJ 480</td>
<td>Criminal Justice Theory</td>
</tr>
<tr>
<td>CRJ 484</td>
<td>White Collar Crime</td>
</tr>
<tr>
<td>CRJ 486</td>
<td>Criminalistics: CSI to Justice</td>
</tr>
<tr>
<td>CRJ 487</td>
<td>Forensic Science</td>
</tr>
<tr>
<td>CRJ 490</td>
<td>Topics in Criminal Justice</td>
</tr>
</tbody>
</table>
Criminology and Criminal Justice

Social Justice and Social Control (CAJC)
Select two classes from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 363</td>
<td>Crim Justice Syst and Policy</td>
<td></td>
</tr>
<tr>
<td>CRJ 408</td>
<td>Police and the Community</td>
<td></td>
</tr>
<tr>
<td>CRJ 409</td>
<td>Intel and Homeland Security</td>
<td></td>
</tr>
<tr>
<td>CRJ 415</td>
<td>Restorative Justice</td>
<td></td>
</tr>
<tr>
<td>CRJ 417</td>
<td>Crimmigration</td>
<td></td>
</tr>
<tr>
<td>CRJ 443</td>
<td>Gender Roles</td>
<td></td>
</tr>
<tr>
<td>CRJ 447</td>
<td>Family Violence</td>
<td></td>
</tr>
<tr>
<td>CRJ 453</td>
<td>Sociology of Law</td>
<td></td>
</tr>
<tr>
<td>CRJ 460</td>
<td>Law &amp; Culture</td>
<td></td>
</tr>
<tr>
<td>CRJ 461</td>
<td>Cops &amp; Cons: Women in Prison</td>
<td></td>
</tr>
<tr>
<td>CRJ 465</td>
<td>Deviant Behavior/Soc Disorganz</td>
<td></td>
</tr>
<tr>
<td>CRJ 466</td>
<td>Drugs, Alcohol, and Society</td>
<td></td>
</tr>
<tr>
<td>CRJ 467</td>
<td>Drugs, Crime, and Justice</td>
<td></td>
</tr>
<tr>
<td>CRJ 469</td>
<td>Juvenile Delinquency</td>
<td></td>
</tr>
<tr>
<td>CRJ 470</td>
<td>Current Issues in Crim Justice</td>
<td></td>
</tr>
<tr>
<td>CRJ 473</td>
<td>Race, Crime and Justice</td>
<td></td>
</tr>
<tr>
<td>CRJ 476</td>
<td>Inside Out Prison Exchange</td>
<td></td>
</tr>
<tr>
<td>CRJ 480</td>
<td>Criminal Justice Theory</td>
<td></td>
</tr>
<tr>
<td>CRJ 484</td>
<td>White Collar Crime</td>
<td></td>
</tr>
<tr>
<td>CRJ 489</td>
<td>Law, Crime, and Society</td>
<td></td>
</tr>
</tbody>
</table>

Research Methods (CAQS)
Select one class from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 300</td>
<td>Political Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 410</td>
<td>Quantitative Research</td>
<td></td>
</tr>
<tr>
<td>CRJ 4130</td>
<td>Qualitative Research Methods</td>
<td></td>
</tr>
<tr>
<td>CRJ 418</td>
<td>CJ Research Methods</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 33-34

Internship/Co-op Experience
An internship or co-op experience of 3 credit hours is required. The CRJ internship provides supervised field experience in a variety of occupational agencies focusing on criminal justice and law enforcement. Each intern spends a minimum of 80 hours on site and attends a weekly seminar. Currently employed sworn federal, state, and local officers or agents may waive, through petition, the internship field experience. All students are required to register for and attend the weekly seminar.

Notes:
1. Any one course may be used to satisfy only one requirement within the major.
2. A maximum of 61 hrs. of CRJ can count toward the 120 hrs. required for graduation.
3. A maximum of 6 hrs. of internship (CRJ 478) credit may count in the minimum 33 hours for the major.
4. At least 15 of the upper level hours in CRJ must be elected at UM-D.
5. Some upper level CRJ courses may require SOC 200 or SOC 201, or PSYC 101.
6. Only 6 hours of academic transfer credit will be accepted for completion of police academy training programs meeting the standards of the Michigan Commission on Law Enforcement.

Accelerated Program: 4+1
The 4+1 accelerated program option allows current UM-Dearborn undergraduate Criminology and Criminal Justice majors to complete both the Bachelor of Arts and the Master of Science in Criminology and Criminal Justice in a format that offers substantial savings in both time and money. This is achieved by a double-counting allowance of up to 15 credits or 5 graduate level (500-level or above) courses. One additional year of graduate work (15-16 credits) would be needed to complete the Master's program enabling students to earn two degrees in a total of five years.

Participation in the 4+1 program is limited to students who have completed at least 60 credit hours with a cumulative GPA of 3.0 or better. Admission to the 4+1 program is at the discretion of the Program Director and requires an admission interview. The "regular" online graduate application should be completed with a "Yes" response to the 4+1 accelerated program question. The only supplemental application materials required for 4+1 applicants are a personal statement describing career goals and a resume.

Once admitted to the 4+1 program, the student must attain a grade of B- or better in each 500 level class elected. Failure to do so may result in removal from the 4+1 program. The courses to choose from are:

- CRJ 417/517 Crimmigration
- CRJ 453/553 Sociology of Law
- CRJ 465/565 Deviant Behavior
- CRJ 418/518 Criminal Justice Research methods
- CRJ 470/570 Current Issues in Criminal Justice
- CRJ 415/515 Principles of Restorative Justice
- CRJ 488/588 Criminal Procedure and the Constitution
- CRJ 409/509 Intelligence and Homeland Security
- CRJ 460/560 Law and Culture
- CRJ 466/566 Drugs, Alcohol and Society
- CRJ 482/582 Legal Ethics

For further information about the Accelerated 4+1 Program, contact Professor Donald Shelton, Director, desjd@umich.edu or 313-583-6404.

Minor or LIBS Concentration
The minor or concentration consists of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 200</td>
<td>Intro to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 416</td>
<td>Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 468</td>
<td>Criminology</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the following (CACR):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 363</td>
<td>Crim Justice Syst and Policy</td>
<td></td>
</tr>
<tr>
<td>CRJ 408</td>
<td>Police and the Community</td>
<td></td>
</tr>
<tr>
<td>CRJ 409</td>
<td>Intel and Homeland Security</td>
<td></td>
</tr>
<tr>
<td>CRJ 415</td>
<td>Restorative Justice</td>
<td></td>
</tr>
<tr>
<td>CRJ 417</td>
<td>Crimmigration</td>
<td></td>
</tr>
<tr>
<td>CRJ 418</td>
<td>CJ Research Methods</td>
<td></td>
</tr>
<tr>
<td>CRJ 470</td>
<td>Current Issues in Crim Justice</td>
<td></td>
</tr>
<tr>
<td>CRJ 471</td>
<td>Comp Crim Justice Systems</td>
<td></td>
</tr>
</tbody>
</table>
Evening and Saturday Offerings
The criminology and criminal justice program is committed to offering both a day and evening/weekend program. Evening/weekend students should watch for infrequently offered courses and take them when available. If a required course is not offered during a reasonable period, a full-time evening student may petition to substitute another course.

Economics
Economics is a social science that studies how a society can best use its resources – how do we get the most from our limited resources? Firms, non-profits, governments, households, and individuals all face this question, so understanding economics is useful in a wide variety of professional and personal situations. Economics helps us think critically about a diverse array of problems ranging from domestic and international public policy issues to personal choices about careers, spending, and investments. Thus, a sound knowledge of economics is vital for understanding the contemporary world and its problems. The Economics major also offers useful training for those interested in pursuing a business career, and provides excellent preparation for post-graduate work in Economics, Law, Business, Public Administration, Public Policy and other professional fields. For students seeking a comprehensive introduction to economic principles and problems, ECON 201 and ECON 202 are offered each term. For economics majors a well-balanced offering of courses is designed to equip the student with an understanding of basic economic relationships, the essential tools of economic analysis, and a store of factual knowledge.

Economics Honors Designation
To be recognized as graduating with honors in economics, students must (1) complete all the requirements for the economics major at UM-Dearborn; (2) earn a B+ or higher in each of at least two capstone 4000-level economics courses; (3) complete an Honors research paper as part of a 3 credit hour Directed Research (ECON 499); and (4) graduate with an overall 3.25 GPA at UM-Dearborn and a 3.5 GPA in upper level economics courses.

Students are expected to apply for candidate status for the Honors Award during or before the first term of their senior year at UM-Dearborn. Requirements for candidate status include being an Economics major, having a cumulative 3.25 GPA at UM-Dearborn, having successfully completed at least one core theory course (ECON 301/ECON 302/ECON 305), and earning a 3.5 GPA average in upper level Economic classes.

Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 10

1 MATH 113 or MATH 115 can be substituted but cannot also be used in the Cognate area.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>
Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 301</td>
<td>Intermediate Macroeconomics(^1,2,3)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 302</td>
<td>Intermediate Microeconomics(^1,2,3)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 305</td>
<td>Economic Statistics(^1,3)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 4 additional upper level ECON courses (excluding ECON 499)\(^4\) 12

Economics Capstone
Select one course from:
- ECON 4011 Monetary Economics
- ECON 4015 Introduction to Econometrics
- ECON 4021 Economics of the Labor Sector
- ECON 4065 History of Economic Thought
- ECON 4085 Public Finance

Cognates
Students must complete at least six credit hours in cognate courses selected from the following list:
- ACC 298 Financial Accounting
- ACC 299 Managerial Accounting
- ITM 120
- ITM 310
- MATH 113 Calc I for Biology & Life Sci or MATH 111:Calculus I
- MATH 114 Calc II for Biology & Life Sci or MATH 116:Calculus II
- CCM/CIS/IMSE 150 Computer Science I
- CIS 200 Computer Science II
- PHIL 234 Symbolic Logic or PHIL 350 Symbolic Logic
- PHIL 485 Philosophy of Science
- Any upper level courses in ANTH, GEOG, HIST, POL, SOC, URS (excluding internships and independent studies).

Total Credit Hours 30

1. MATH 104, MATH 105, MATH 113, MATH 115, or equivalent are prerequisites to these courses.
2. ECON 301 and ECON 302 should be taken no later than the junior year.
3. Only one of the three courses may be transferred to UM-D
4. Only 3 credits of economics internship (ECON 398), can be applied to the major requirement.

Note: Students considering graduate study in economics are advised to take one year of calculus (MATH 113 & MATH 114 or MATH 115 & MATH 116), MATH 217 Introduction to Matrix Algebra, ECON 4015 Introduction to Econometrics and ECON 4065 History of Economic Theory.

Notes:
1. At least 15 of the 24 upper level credit hours of Economics (ECON) must be elected at UM-D.

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level (300- and 400/4000-level courses) courses in Economics (ECON).

English

A major in English at UM-Dearborn focuses on the dynamic intersection of language, literature and society as well as the identities and communities shaped by this intersection. Majors in the English discipline have the opportunity to explore the relationships between reading and writing printed text by becoming familiar with the strategies that writers use to shape conceptions of truth.

The primary goal of the English discipline is to help students develop a sensitivity to the ways spoken and printed language frame how we conceive and discuss our identities throughout history. The UM-Dearborn English Faculty is committed to this goal by offering rigorous, comprehensive courses that contextualize language in terms of the various traditions and genres of English and American literature, the history of the English language and the critical skills necessary to craft effective expository and creative writing.

Acknowledging the unique perspective provided by studying English language and literature in a part of urban America that offers vibrant multi-cultural experiences, the UM-Dearborn English major also exposes students to the future of English language and literature in the context of a global community both in — and beyond — Detroit. Therefore, majors in the English discipline may expect to develop a close relationship to the social ramifications of the written word and its potential for incorporating both communities and individuals into a larger, more internationally aware reading and listening audience.

Humanities Internship Program

The Humanities Internship Program offers practical experience to students concentrating in English and other humanistic fields and those interested in communication or journalism. Students gain and demonstrate skills desired by employers, make important contacts, and explore a field of work before graduation. For more information on the Humanities Internship, see the Internship Coordinator, 3028 CB, 313-583-6376, or inquire at the Literature, Philosophy, and The Arts Department office in 3011 CB, 313-593-5433.

Independent Study

Independent Study (ENGL 399) provides an opportunity for students to extend the work of existing courses or to explore areas not included in the current course offerings. Consult the Literature, Philosophy, and the Arts Department Guidelines for Independent Study, available in the Department Office, 3011 CB, 313-593-5433. To enroll in an independent research project, students must have a prior, written Independent Study Contract with the instructor and prior, written permission of the Department Chair. One to three credit hours available.

Prerequisites to the Major

Students are required to complete the following as a prerequisite:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 200</td>
<td>Intro to English Studies</td>
<td>3</td>
</tr>
</tbody>
</table>
This course serves as the “gateway” to the major with enrollment limited to 20 students per section. ENGL 200 exposes students to the terms of English Studies, literary criticism and literary theory, knowledge essential to higher-level English courses.

Virtually all upper-level English courses require as prerequisites ENGL 200 and COMP 106 or equivalent. In addition, other prerequisites for a specific upper-level English course may be introduced by the instructor in the term in which the course is offered. Students are advised to consult the current Schedule of Classes for prerequisites each term. If a student has not satisfied the prerequisites of a course, the student may be enrolled by permission of the instructor, provided that there are other relevant qualifications.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

**Major Requirements**

All students majoring in English must complete 30 credit hours of upper-level ENGL. Four of these courses are required upper-level surveys:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 311</td>
<td>British Lit: Beowulf to Milton</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 312</td>
<td>British Lit: Milton to 1900</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 313</td>
<td>American Lit: Colonial to 1900</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>Brit &amp; Amer Lit: 1900-Present</td>
<td>3</td>
</tr>
</tbody>
</table>

Students are encouraged to take these surveys early in their careers so that they acquire an overview of literary history before taking more specialized upper-level courses. Students are required to take all four, but they can be taken at any time after ENGL 200 and are not prerequisites for other courses.

In addition to taking the four required survey courses listed above, students are required to complete at least six courses of upper-level ENGL electives. Students may wish to group some of these electives in the tracks listed below. Please note that students are *not* required to select a track for these remaining courses.

- British Literature and Culture
- American Literature and Culture
- Writing
- World English Language and Literature (WELL)

English majors, whether they elect a track or not, must also fulfill the following requirements:

The English Discipline’s *English Diversity Requirement (CAED)*. English majors must elect one course with substantial inclusion of literature in English that expands the traditional Anglo-American literary curriculum. This literature may represent various national groups, ethnic groups, genders, and subcultures. The following courses satisfy the English “Diversity Requirement”:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 239</td>
<td>Intro to Lit: African American (ENGL 239 will not count in the 30 upper level credits required for the major.)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 389</td>
<td>The Odyssey of Blk Men in Amer</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 443</td>
<td>Anglo-Irish Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 445</td>
<td>20C/21C Women Authors</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 469</td>
<td>Contemporary African Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 471</td>
<td>Sexual Subcultures in Lit</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 4705</td>
<td>Black Women / Lit, Film, Music</td>
<td>3</td>
</tr>
</tbody>
</table>

Or other options that may be available on a semester by semester basis.

Courses that satisfy the English Diversity Requirement will be noted in the Schedule of Classes for any particular semester.

The *English Historical Requirement (CAEH)*. English majors must elect one courses which addresses literature prior to 1800. Choose from:
### Elective "Tracks" in the English Curriculum

Students may choose to elect a "track" by taking at least 3 of their upper-level courses from one of the following four areas:

- British Literature and Culture
- American Literature and Culture
- Writing
- World English Language and Literature (WELL)

Electing a track is optional, but tracks give students the ability to focus their electives if they so desire. The courses for the four tracks are as follows. The following list is subject to change. Consult the current Schedule of Classes or contact the English Discipline representative for future additions to the tracks, including Topics courses offered on a semester basis.

### British Literature and Culture Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 364</td>
<td>Bible and Western Tradition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 356</td>
<td>Reading Urban Monstrosity</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 368</td>
<td>20C/21C British/Amer Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>Eng Lit from Begin-1500</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 372</td>
<td>Eng Lit: 1500 to 1600</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 373</td>
<td>English Lit 1600-1660</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 374</td>
<td>Restoration and Early Eighteenth-Century Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 375</td>
<td>The Age of Johnson and Burney</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 400</td>
<td>Lit of Anglo-Saxon England</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>Medieval Mystical Writers</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 405</td>
<td>Chaucer</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 406</td>
<td>Studies in Medieval Lit/Cult</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 408</td>
<td>Shakespeare I: Earlier Works</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 409</td>
<td>Shakespeare II: Later Works</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 410</td>
<td>Maj Engl Authors of the Renais</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 412</td>
<td>Milton</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 413</td>
<td>Shakespeare’s Contemporaries</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 414</td>
<td>Seventeenth-Century Readings</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 420</td>
<td>Maj Engl 18th-Century Authors</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 423</td>
<td>Restoration Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 424</td>
<td>18th-Century English Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 427</td>
<td>Jane Austen</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 434</td>
<td>The Victorian Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 440</td>
<td>Major 20C/21C Engl/Amer Auths</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 443</td>
<td>Anglo-Irish Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 450</td>
<td>Maj Am Auth to the Civil War</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 453</td>
<td>Contemporary American Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 455</td>
<td>Stud in 19th-Cent Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 456</td>
<td>Teaching Fiction</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 376</td>
<td>Brit Lit in Romantic Era</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 377</td>
<td>Victorian Poetry and Prose</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 400</td>
<td>Maj Engl Auth of the Mid Ages</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>Lit of Anglo-Saxon England</td>
<td>2-3</td>
</tr>
</tbody>
</table>

### Cognates

English majors must also complete at least six credit hours of cognate courses which are to be selected from upper-level offerings in art history (ARTH), comparative literature (COML), communication (COMM), history (HIST) (excluding HIST 3085), humanities (HUM) (excluding HUM 485), journalism and screen studies (JASS), linguistics (LING), music history (MHIS) or philosophy (PHIL). Other courses that can be shown to be specifically complementary to the study of literature are sometimes approved by Petition as cognates. Cross listed comparative literature, communication, journalism and screen studies, linguistics, and humanities courses may be elected either for major or for cognate credit, but not for both.

**Notes:**

1. A maximum of 54 hrs. in ENGL may count in the 120 hrs. required for graduation.
2. At least 15 of the 30 upper level credit hours in English (ENGL) must be elected at UM-D.
3. All English majors must complete an English Diversity requirement course, a English Historical requirement course, and a English Research Intensive/Independent Study course. Upper level courses used to fulfill the above requirements may also be counted in the 18 hrs. required in English Electives for the major.

The "English Research Intensive Requirement (CAER):" English majors must elect one course designated “Research Intensive,” from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 364</td>
<td>Bible and Western Tradition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 356</td>
<td>Reading Urban Monstrosity</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 368</td>
<td>20C/21C British/Amer Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>Eng Lit from Begin-1500</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 372</td>
<td>Eng Lit: 1500 to 1600</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 373</td>
<td>English Lit 1600-1660</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 374</td>
<td>Restoration and Early Eighteenth-Century Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 375</td>
<td>The Age of Johnson and Burney</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 400</td>
<td>Lit of Anglo-Saxon England</td>
<td>2-3</td>
</tr>
</tbody>
</table>
### American Literature and Culture Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 304</td>
<td>Studies in Detroit Culture</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 306</td>
<td>Comparat. American Identities</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 361</td>
<td>Am Lit:1630 to Civil War</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 363</td>
<td>Am Lit:Civil War to WW I</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 368</td>
<td>20C/21C British/Amer Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 383</td>
<td>American English</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 389</td>
<td>The Odyssey of Blk Men in Amer</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 440</td>
<td>Major 20C/21C Engl/Amer Auths</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 450</td>
<td>Major Am Auth to the Civil War</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 451</td>
<td>Maj Am Auth Civ War to WWI</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 452</td>
<td>Major 20C/21C American Authors</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 453</td>
<td>Contemporary American Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 455</td>
<td>Stud in 19th-Cent Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 456</td>
<td>Teaching Fiction</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 469</td>
<td>Contemporary African Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 4705</td>
<td>Black Women / Lit, Film, Music</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 473</td>
<td>Arab American Women Writers</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 477</td>
<td>African American English</td>
<td>3</td>
</tr>
</tbody>
</table>

### Writing Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 310</td>
<td>Narrative Journalism</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 317</td>
<td>Case Studies in Tech Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 323</td>
<td>Advanced Creative Writing</td>
<td>2-3</td>
</tr>
<tr>
<td>ENGL 327</td>
<td>Advanced Exposition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 330</td>
<td>Feature Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 331</td>
<td>Online Reprtng,Resrch,Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 364</td>
<td>Writing for Civic Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>

### World English Language and Literature (WELL Track)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 381</td>
<td>Intro to Postcolonial Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 389</td>
<td>The Odyssey of Blk Men in Amer</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 469</td>
<td>Contemporary African Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 4705</td>
<td>Black Women / Lit, Film, Music</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 473</td>
<td>Arab American Women Writers</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 477</td>
<td>African American English</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 482</td>
<td>History of the English Lang</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 484</td>
<td>World Englishes</td>
<td>3</td>
</tr>
</tbody>
</table>

Some courses will fit in a track or tracks depending on their content for a given semester. These include:

### Secondary Certification Supplement

One of the following supplements is required for students seeking certification for high school teaching in English. A major consists...
of 30 hours, including one upper-level writing course (ENGL 323 or ENGL 327) and two linguistics courses (LING 280 or LING 281 and ENGL 461/ENGL 461). The balance of the thirty hours for the major must be selected with the approval of the degree and certification advisors in accordance with the English major and certification requirements.

A minor in English for certification consists of 20 hours, including the same required courses in writing and linguistics, with the balance to be selected with the approval of degree and certification advisors. See secondary certification (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification) for more information.

Both the major and the minor have as a supplementary requirement, not included in the 30 or 20 hours, LIBR 470 Literature for Young People.

### Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in English (ENGL).

### Environmental Science
The environmental science major provides students with a strong background in areas of science related to environmental concerns and with an opportunity to study environmental problems from a scientific point of view that integrates biology, chemistry, Earth science, and physics. The major leads to a BS degree and prepares students for careers in waste management, environmental consultation, teaching, environmental health and resource management.

#### Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Gen Chemistry IB</td>
<td></td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 146</td>
<td>General Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Calc I for Biology &amp; Life Sci</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calc II for Biology &amp; Life Sci</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 116</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>Select one of the following: 3-4</td>
<td>Perspectives in Physics 1</td>
<td></td>
</tr>
<tr>
<td>or PHYS 100</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 125</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>or PHYS 150</td>
<td>General Physics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 30-31

1. Students in the Environmental Chemistry concentration must elect PHYS 125 or PHYS 150.

### Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

#### Foundational Studies
- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

#### Areas of Inquiry
- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

#### Capstone
- Capstone (GECE) – 3 Credits (p. 22)

### Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

### Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ENST 301</td>
<td>Concepts of Environmentalism</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 301</td>
<td>Environmental Science</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 304</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 395</td>
<td>Sem on Environmental Issues</td>
<td>1</td>
</tr>
<tr>
<td>Select at least three upper-level credit hours in Geology (GEOL) 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select at least three upper-level credit hours in Environmental Science (ESCI) 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENST 385</td>
<td>Environmental Internship</td>
<td>3</td>
</tr>
<tr>
<td>&amp; ENST 485</td>
<td>Seminar in Environ Topics</td>
<td></td>
</tr>
</tbody>
</table>

1. Students in the Environmental Chemistry concentration must elect PHYS 125 or PHYS 150.
ESCI 492  Capstone Research Experience

Total Credit Hours  25

1  Beyond courses applied to other portions of the major requirements

Note: LIBS 395 may be substituted by Petition for ENST 385 if the cooperative education work assignment is environmentally oriented.

**Concentration (16-24 hrs)**

Must select one of the following concentrations:

**Environmental Biology Concentration**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Aquatic Ecosystems</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Field Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Plant Ecology</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Population Genetics &amp; Evol Lab</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Limnology</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Advanced Field Ecology</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Environmental Chemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Current Topics in Chemistry 1</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Instrumental Methods of Analysis</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Physical Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry II 1</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry II 2</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Topics in Chemistry 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours  16

1  Acceptable by Petition when topic is environmentally oriented.

**Environmental Chemistry Concentration**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Environmental Chemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Introduction to Toxicology</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Physical Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Principles of Biochemistry 2</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Current Topics in Chemistry 1</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Instrumental Methods of Analysis</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Physical Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry I 2</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry II 2</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Topics in Chemistry 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours  24

1  Acceptable by Petition when topic is environmentally oriented.

**Earth Science Concentration**

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>General Physics II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Field Methods</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Geology</td>
<td>11</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Physical Geography</td>
<td>11</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Natural Sciences</td>
<td>11</td>
</tr>
</tbody>
</table>

Total Credit Hours  16

1  Physical Geography (GEOG) offerings include GEOG 302, GEOG 310 and ESCI 330.

**Individualized Concentration**

This concentration is a highly selective program for qualified students with well-conceived academic goals.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>General Physics II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Environmental Chemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Introduction to Toxicology</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Physical Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry I 2</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry II 2</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Biochemistry Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Topics in Chemistry 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours  16

1  Individualized concentration must be developed in consultation with the Environmental Science program advisor, and the proposed coursework must be approved by the Environmental Science Program Committee by Petition before the student achieves senior standing.

Notes:

1. A maximum of 72 credit hours in courses offered by the Department of Natural Sciences (ASTR, BCHM, BIOL, CHEM, ESCI, ENST, GEOF, MICR, NSCI, PHYS) may count in the 120 hrs. required for graduation.

2. At least 12 of the 41 upper level hours in the major must be elected at UM-D.

3. Students cannot take both CHEM 370 and CHEM 470 and/or CHEM 471 for any combination of major or minor requirements.

4. A maximum of 6 hrs. of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 hours required to graduate.
Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in Environmental Science (ESCI).

Environmental Studies
The solutions to the current environmental problems are complex and require teamwork and understanding between specialists in many disciplines. The AB (Bachelor of Arts) in the Environmental Studies degree program focuses on the interdisciplinary nature of environmental problem solving at the local, regional and international level. Students can choose from among four (4) concentrations. Throughout their academic studies, students in this program interact with students in the Environmental Science program.

Career Opportunities
Upon completion of this program, the graduates have a great variety of career opportunities available in both the public and private sector. For example, recent graduates hold such positions as teacher, national park naturalist, resource policy planner, Regional Director of International Joint Commission, Director of Environmental Programs for SEMCOG, regional land use planner, public health officer, and director of a public interest group. All students who qualify for graduate school should seriously consider working toward an advanced degree, which is required for most leadership positions.

Internship Program
An important feature of this program is the internship requirement that allows the students to examine possible professional positions in an area of their interest through on-the-job experience. Some of the internships which environmental studies students have had are field analyst for the Michigan Department of Environmental Quality, hazardous waste analyst, marine safety inspector with the U.S. Coast Guard, public health sanitarian, researcher for a public interest group, national park naturalist, assistant to a state legislator, director of a community organic garden, summer camp nature director, and assistant analyst in a remote sensing operation.

Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 112</td>
<td>Computer Literacy/Info Mgmt 2</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA 1</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credit Hours 15

Environmental Core Courses (27-29 hrs)
The graduate in Environmental Studies requires a broad background of knowledge in the Natural Sciences, the Humanities, the Social Sciences, and the Behavioral Sciences as well as interdisciplinary courses which provide a synthesis among disciplines. Students in the program will also have an opportunity to interact with a variety of environmental professionals through seminars and an internship.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 320</td>
<td>Field Biology</td>
<td>4</td>
</tr>
<tr>
<td>ENST 301</td>
<td>Concepts of Environmentalism</td>
<td>3</td>
</tr>
<tr>
<td>ENST 305</td>
<td>Env Instrumentation and Analy   4</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 301</td>
<td>Environmental Science</td>
<td>4</td>
</tr>
<tr>
<td>ENST 385</td>
<td>Environmental Internship</td>
<td>1</td>
</tr>
<tr>
<td>ENST 395</td>
<td>Sem on Environmental Issues</td>
<td>1</td>
</tr>
<tr>
<td>ENST 485</td>
<td>Seminar on Environmental Topics</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 488</td>
<td>Env Lit &amp; Reps of Nature</td>
<td>3</td>
</tr>
<tr>
<td>ENST 312</td>
<td>Environmental Ethics</td>
<td>2</td>
</tr>
<tr>
<td>JASS 334</td>
<td>Science and Environmental Jour</td>
<td>2</td>
</tr>
<tr>
<td>JASS 421</td>
<td>Environmental Filmmaking</td>
<td>1</td>
</tr>
<tr>
<td>ENST 310</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>ENST 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>ENST 312</td>
<td>Economic Geography</td>
<td>3</td>
</tr>
<tr>
<td>ENST 325</td>
<td>Environmental Politics</td>
<td>2</td>
</tr>
<tr>
<td>ENST 327</td>
<td>Michigan Geography</td>
<td>2</td>
</tr>
<tr>
<td>ENST 351</td>
<td>Environmental Economics</td>
<td>2</td>
</tr>
<tr>
<td>ENST 456</td>
<td>Ecological Economics</td>
<td>2</td>
</tr>
<tr>
<td>ENST 467</td>
<td>Food Politics and Policy</td>
<td>2</td>
</tr>
<tr>
<td>ENST 483</td>
<td>Justice, Crime and Environment</td>
<td>2</td>
</tr>
<tr>
<td>ENST 487</td>
<td>Comparative Enviro Policy</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credit Hours 27-29

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)

1 MATH 104, MATH 105, MATH 113 or MATH 115 is a required prerequisite for CHEM 134.
2 Other computer literacy courses may substitute for CIS 112 by Petition.
• Lecture/Lab Science Course
• Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements
Must select one concentration below. A minimum of 18 credit hours of courses chosen from one of the following four Concentration Areas:

**Concentration A: Land Resources**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENST 330</td>
<td>Land Use Planning and Mgmt</td>
<td>4</td>
</tr>
<tr>
<td>ENST 340</td>
<td>Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>ENST 445</td>
<td>Environmental Law</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives (CALR)
Select from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 350</td>
<td>Prehistoric Archaeology</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>Ecology</td>
</tr>
<tr>
<td>ENST 203</td>
<td>Weather and Climate</td>
</tr>
<tr>
<td>ENST 204</td>
<td>Landforms</td>
</tr>
<tr>
<td>ENST 310</td>
<td>Economic Geography</td>
</tr>
<tr>
<td>ENST 340</td>
<td>Remote Sensing</td>
</tr>
<tr>
<td>ENST 325</td>
<td>Environmental Politics</td>
</tr>
<tr>
<td>ESCI 332</td>
<td>Hazardous Waste Management</td>
</tr>
<tr>
<td>GEOL 305</td>
<td>Intro to GIS</td>
</tr>
<tr>
<td>GEOL 350</td>
<td>Geomorphology</td>
</tr>
<tr>
<td>GEOL 370</td>
<td>Environmental Geology</td>
</tr>
<tr>
<td>GEOL 377</td>
<td>Field Methods ¹</td>
</tr>
</tbody>
</table>

Total Credit Hours 18

**Concentration B: Naturalist**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 304</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ENST 474</td>
<td>Environmental Education</td>
<td>3</td>
</tr>
<tr>
<td>ENST 486</td>
<td>Environmental Interpretation</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 337</td>
<td>Plant Ecology</td>
</tr>
<tr>
<td>BIOL 353</td>
<td>Ornithology</td>
</tr>
<tr>
<td>BIOL 424</td>
<td>Biology of Spiders</td>
</tr>
<tr>
<td>ENST 326</td>
<td>Anth of Health and Environment</td>
</tr>
<tr>
<td>ENST 340</td>
<td>Remote Sensing</td>
</tr>
<tr>
<td>ENST 488</td>
<td>Env Lit &amp; Reps of Nature</td>
</tr>
<tr>
<td>ESCI 305</td>
<td>Intro to GIS</td>
</tr>
<tr>
<td>ESCI 315</td>
<td>Aquatic Ecosystem</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
</tr>
<tr>
<td>GEOG 204</td>
<td>Landforms</td>
</tr>
<tr>
<td>GEOL 350</td>
<td>Geomorphology</td>
</tr>
<tr>
<td>GEOL 377</td>
<td>Field Methods</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
</tr>
<tr>
<td>or HRM 305</td>
<td>Human Resource Policy/Admin</td>
</tr>
</tbody>
</table>

Electives (CANT)
Select from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 350</td>
<td>Prehistoric Archaeology</td>
</tr>
<tr>
<td>ANTH 370</td>
<td>Indians of North America</td>
</tr>
<tr>
<td>ANTH 430</td>
<td>Medical Anthropology</td>
</tr>
</tbody>
</table>

**Concentration C: Resources Policy and Management**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisite Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
</tr>
<tr>
<td>ENST 325</td>
<td>Environmental Politics</td>
</tr>
<tr>
<td>ENST 445</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>ENST 351</td>
<td>Environmental Economics</td>
</tr>
<tr>
<td>or ENST 456</td>
<td>Ecological Economics</td>
</tr>
<tr>
<td>ESCI 304</td>
<td>Ecology</td>
</tr>
</tbody>
</table>

Electives (CARP)
Select from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 372</td>
<td>Economic Demography</td>
</tr>
<tr>
<td>ENST 310</td>
<td>Economic Geography</td>
</tr>
<tr>
<td>ENST 456</td>
<td>Ecological Economics</td>
</tr>
<tr>
<td>ENST 467</td>
<td>Food Politics and Policy</td>
</tr>
<tr>
<td>ENST 483</td>
<td>Justice, Crime and Environment</td>
</tr>
<tr>
<td>ENST 487</td>
<td>Comparative Enviro Policy</td>
</tr>
<tr>
<td>ESCI 305</td>
<td>Intro to GIS</td>
</tr>
<tr>
<td>ESCI 332</td>
<td>Hazardous Waste Management</td>
</tr>
<tr>
<td>ESCI 372</td>
<td>Energy Resources</td>
</tr>
<tr>
<td>POL 300</td>
<td>Political Analysis</td>
</tr>
<tr>
<td>POL 312</td>
<td>Legislative Process</td>
</tr>
</tbody>
</table>

¹ Can be taken up to three times.
Film Studies

Designed as an interdisciplinary program, the minor provides an intellectually challenging and cross-culturally oriented approach to the study of cinema. Courses fulfilling the Film Studies Minor are housed in Journalism and Screen Studies (JASS).

**Minor Requirements**

**Prerequisite Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASS 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses**

15 credit hours in upper level credit as outlined below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASS 440</td>
<td>Theory of the Screen</td>
<td>3</td>
</tr>
</tbody>
</table>

Four courses from the following (CAOF)

- JASS 370 Narratives of Film and Lit
- JASS 385 Black Cinema
- JASS 387 Gender, Sex, Power Screen Studies
- JASS 398 Independent Study in JASS
- JASS 404 Video Game Studies & Criticism
- JASS 406 History & Theory of Documentary
- JASS 421 Environmental Filmmaking
- JASS 457 American Cinema
- JASS 467 Script-Writing Workshop

**Total Credit Hours**

- Total Credit Hours: 15

**LIBS Concentration**

A concentration in Film Studies for the LIBS major has the following requirements:

**Prerequisite Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASS 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

- Total Credit Hours: 3

**Required Courses**

15 credits in upper-level courses from the list below (CAGL).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select five of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JASS 332</td>
<td>Creating the Graphic Novel</td>
<td></td>
</tr>
<tr>
<td>JASS 336</td>
<td>Film and Music</td>
<td></td>
</tr>
<tr>
<td>JASS 357</td>
<td>National Cinemas</td>
<td></td>
</tr>
<tr>
<td>JASS 370</td>
<td>Narratives of Film and Lit</td>
<td></td>
</tr>
<tr>
<td>JASS 385</td>
<td>Black Cinema</td>
<td></td>
</tr>
<tr>
<td>JASS 387</td>
<td>Gender, Sex, Power Screen Studies</td>
<td></td>
</tr>
<tr>
<td>JASS 398</td>
<td>Independent Study in JASS</td>
<td></td>
</tr>
<tr>
<td>JASS 403</td>
<td>Issues in Cyberspace</td>
<td></td>
</tr>
<tr>
<td>JASS 404</td>
<td>Video Game Studies &amp; Criticism</td>
<td></td>
</tr>
<tr>
<td>JASS 406</td>
<td>History &amp; Theory of Documentary</td>
<td></td>
</tr>
<tr>
<td>JASS 413</td>
<td>Photojournalism</td>
<td></td>
</tr>
<tr>
<td>JASS 436</td>
<td>Memoir and Travel Writing</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credit Hours**

- Total Credit Hours: 15

Notes:

1. Some upper level courses in concentrations A, B, C, and D may require additional prerequisites.
2. Courses used to satisfy ENST core area can also be used to satisfy concentration area requirements.
3. A maximum of 6 hrs. of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 hours required to graduate.

**Minor or LIBS Concentration**

A minor or concentration consists of 15 credit hours upper-level courses in Environmental Studies (ENST).
French/French Studies

(See also International Studies (p. 118) Major)

French studies offers students a thorough training in the language and culture of the 200 million people who live in France and other francophone areas in the world.

In so doing, it familiarizes them with a vital and influential tradition in literature and the arts which spans twelve centuries and a language of importance in the realms of business, politics, science and technology.

French Studies recognizes the need to provide today’s students with a broad education in French. Consequently, it requires concentrators to complete coursework in four general areas: language (including the specialized language of business), culture/civilization, film and literature. For the same reason, French Studies takes as its purview the French-speaking world as a whole. Although it places emphasis on France, the concentration also provides an introduction to the other French-speaking countries of Europe, Asia, Africa, North America and the Caribbean which are playing roles of increasing prominence in global affairs.

UM-Dearborn offers undergraduates two degree programs involving French: International Studies and French Studies. Both are designed to enable majors to take practical advantage of the study of one of the world’s leading languages and cultures. As they complete their degree requirements, International and French Studies majors acquire knowledge and skills that prepare them for careers in numerous fields, both in the United States and abroad.

Students who do not major in International Studies or French Studies may wish to choose French as a minor or a concentration in the Liberal Studies (LIBS) major.

French Studies Major

As designed, the French Studies Program offers graduates a wide variety of educational and employment possibilities. It prepares them for careers in government service, in print and electronic journalism, and in language-related professions such as translating and interpreting. It also enables them to enter the teaching profession and to pursue advanced study in French at the master’s and doctoral level. With supplementary training in areas such as political science, law, and management, graduates of the program could embark on careers in international affairs, law, and business.

Prerequisites to the Major

Students majoring in French Studies must successfully complete FREN 202 or demonstrate equivalent French language proficiency.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course

Social and Behavioral Analysis (GEBS) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

A minimum of 24 credit hours in upper-level French (FREN) classes must be completed as outlined below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 301</td>
<td>Advanced Conversation and Comp</td>
<td></td>
</tr>
<tr>
<td>FREN 302</td>
<td>Advanced Conversation and Comp</td>
<td></td>
</tr>
</tbody>
</table>

Specialized Language Course (CAFS)

Select one of the following: 3

- FREN 305 Language of Business
- FREN 306 Cult Intro to French Business
- FREN 308 Advanced Writing
- FREN 408 Writing and Translating

Civilization/Culture Course (CAFC)

Select one of the following: 3

- FREN 336 French Civilization of Past
- FREN 337 France in the 20th Century
- FREN 338 France of Today
FREN 339  Francophone Lit and Civil
FREN 375  Parisian Itineraries
FREN 388  Socio-Ctrl Iss Contemp France

Film Course
FREN 332  French Cinema

Literature Course (CAFL)
Select one of the following: 3
FREN 330  Frnch Lit: Md Ages-18 Century
FREN 331  French Lit: 19th-20th Century
FREN 334  Workshop in French Theater
FREN 339  Francophone Lit and Civil
FREN 375  Parisian Itineraries
Select two additional upper-level French courses 6

Cognates
Select two upper level courses from the following disciplines: AAAS, ANTH, ARBC, ARTH, COMM, COML, ECON, ENGL, ENST, GEOG, GER, GLOC, HIST, HUM, JASS, LIBS (excluding LIBS 395, 396, 397), MCL, PHIL, POL, RELS, SOC, SPAN, WGST.

Total Credit Hours 24

Majors are encouraged to strengthen their knowledge of French language and culture by participating in any of the approved study-abroad programs.

Notes:
1. FREN 339 and FREN 375 can be used as a literature or civilization/culture requirement, but not both.
2. A maximum of 54 hours in FREN may count in the 120 hours required for graduation.
3. At least 15 of the 24 upper level hours in French must be elected at UM-D.
4. A maximum of 3 credits of HUM 485 internship can be used in the cognate area.

Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in French (FREN).

Geography
Minor or LIBS Concentration only
A student must complete the following requirements for the minor or concentration in geography:

Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 204</td>
<td>Landforms</td>
<td></td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td></td>
</tr>
</tbody>
</table>

Select one course from human geography: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 201</td>
<td>Cultural Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG 205</td>
<td>Geography of the United States</td>
<td></td>
</tr>
</tbody>
</table>

Required courses
12 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GECO 302</td>
<td>Mapping Our World</td>
<td>3</td>
</tr>
</tbody>
</table>

Select nine credit hours from any of the following (CAGY): 9

Physical Geography courses:
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 320</td>
<td>Global Climate Change</td>
<td></td>
</tr>
<tr>
<td>GEOG 375</td>
<td>Geomorphology</td>
<td></td>
</tr>
<tr>
<td>GEOL 377</td>
<td>Field Methods</td>
<td></td>
</tr>
</tbody>
</table>

Human Geography courses:
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 403</td>
<td>Urban Economics</td>
<td></td>
</tr>
<tr>
<td>GEOG 310</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>HIST 3695</td>
<td>American City</td>
<td></td>
</tr>
<tr>
<td>POL 323</td>
<td>Urban Politics</td>
<td></td>
</tr>
</tbody>
</table>

Geospatial Techniques courses:
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 307</td>
<td>Geography of Western Europe</td>
<td></td>
</tr>
<tr>
<td>GEOG 327</td>
<td>Michigan Geography</td>
<td></td>
</tr>
</tbody>
</table>

Other courses:
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 390</td>
<td>Topics in Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG 399</td>
<td>Independent Study</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 12

Geological Science

The Geological Sciences program provides students with a strong background in geology, astronomy, and oceanography. It enables them to study and understand processes that have shaped the Earth and the solar system over the last 4.6 billion years.

Students will learn about both the internal and surface processes acting on the earth, including the forces behind plate tectonics and its surface manifestations, earthquakes and volcanoes. The Geological Sciences student will take advantage of new and developing technologies such as the use of global positioning systems and geographic information systems (GIS) in the mapping of geologic, soil, water and other environmental features.

The major leads to a BS degree that prepares students for graduate study in any of the geological sciences, for students who wish to qualify for a teaching certificate in Earth Science, or for students interested in the study of geology or astronomy as part of an undergraduate liberal arts education.
Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Gen Chemistry IB</td>
<td></td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 146</td>
<td>Gen Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 218</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>MATH 113 &amp; MATH 114</td>
<td>Calc I for Biology &amp; Life Sci and Calc II for Biology &amp; Life Sci</td>
<td></td>
</tr>
<tr>
<td>MATH 115 &amp; MATH 116</td>
<td>Calculus I and Calculus II</td>
<td></td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>PHYS 125 &amp; PHYS 126</td>
<td>Introductory Physics I and Introductory Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 150 &amp; PHYS 151</td>
<td>General Physics I and General Physics II</td>
<td></td>
</tr>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>Introductory Astronomy Lab</td>
<td>1</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

Capstone

- Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

Language Courses

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

Minimum 35 credit hours required

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 303</td>
<td>Geodesy &amp; Cartog. Principles</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 313</td>
<td>Earth Materials</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 350</td>
<td>Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td>or GEOL 377</td>
<td>Field Methods 1</td>
<td>1-3</td>
</tr>
<tr>
<td>or GEOL 478</td>
<td>Geology of the National Parks</td>
<td></td>
</tr>
<tr>
<td>Research/Internship</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>GEOL 498</td>
<td>Independent Study in Geology or GEOL 499 Laboratory and Field Research</td>
<td></td>
</tr>
<tr>
<td>ENST 385</td>
<td>Environmental Internship &amp; Seminar in Environ Topics</td>
<td></td>
</tr>
</tbody>
</table>

Electives in Geological Sciences

Select a minimum of 14 or 16 credit hours upper level, whichever is needed, to reach a total of 35 credit hours for the major (14 hrs. if GEOL 478 is taken in the core, 16 hrs. if GEOL 377 is taken) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 325</td>
<td>Principles of Organic Chem</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 330</td>
<td>Land Use Planning and Mgmt</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 390</td>
<td>Topics in Environmental Sci</td>
<td>1-3</td>
</tr>
<tr>
<td>ESCI 485</td>
<td>Spatial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GEG 390</td>
<td>Topics in Geography</td>
<td>1-3</td>
</tr>
<tr>
<td>GEOL 300+</td>
<td>Any courses that have not been used elsewhere in the major</td>
<td></td>
</tr>
<tr>
<td>PHYS 390</td>
<td>Current Topics in Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 421</td>
<td>Astrophysics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 490</td>
<td>Topics in Physics</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Notes:

1. At least 12 of the 35 upper level credit hours in the major must be elected at UM-Dearborn.
2. A maximum of 6 hrs. of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 hours required to graduate.

**Geology**

*(see Geological Sciences (p. 108) for major)*

**Minor or LIBS Concentration**

A minor or concentration in geology (GEOL) consists of 12 credit hours of upper-level courses in GEOL.

**Geospatial Analysis & Mapping (GAM) Certificate**

The GAM Certificate provides students with the experience and knowledge in the theory and application of GIS and remote sensing. Students learn the basic components of GIS and spatial data, understand problems that arise in the data acquisition and analysis, and develop a sound background in cartographic principles. Many students could increase their marketability with a GAM certificate. This includes (but is not limited to) careers in public health, criminal justice, sociology, economics, social and natural science education, computer engineering, Earth and environmental science or studies, urban and regional studies, and anthropology/archaeology.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 305</td>
<td>Intro to GIS (Tier I)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 440</td>
<td>Advanced GIS Applications (Tier II)</td>
<td>3</td>
</tr>
<tr>
<td>Independent Study/Research/Internship- 3 credit hours 498/499</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Independent Study or Directed Research or Geospatial Internship with Program Director approval required by Petition. (Tier III).  

**Electives**

Select 6 credit hours from any of the following: 6 credit hours total.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 303</td>
<td>Geodesy &amp; Cartog. Principles (Tier I)</td>
</tr>
<tr>
<td>GEOL 340</td>
<td>Remote Sensing (Tier I)</td>
</tr>
<tr>
<td>ESCI 485</td>
<td>Spatial Analysis (Tier II)</td>
</tr>
<tr>
<td>GEOL 470</td>
<td>Geodatabase Design &amp; Mgmt (Tier II)</td>
</tr>
</tbody>
</table>

Total Credit Hours 16

---

1. 498 (Independent Study) credits can be taken in any discipline but to count toward the certificate, it must be approved by GAM Program Director by Petition.

2. 499 (Laboratory and Field Research) credits can be taken in any discipline but to count toward the certificate, it must be approved by GAM Program Director by Petition.

**Notes Regarding the GAM Certificate Program:**

1. A minimum of 2.5 cumulative GPA and sophomore standing are required for admission to the program.

2. A maximum of four credit hours of transfer coursework may be counted toward the minimum 16 credit hours required for the program by Petition to the Program Director.

3. A maximum of 6 credit hours of Independent Study, Directed Research or Geospatial Internship may be counted toward the program and must be approved by the Program Director, by Petition, prior to completion.

4. A minimum 2.0 GPA in the UM-Dearborn courses counting toward the GAM certificate is required at the time of graduation and/or posting of the certificate.

**German**

*(minor or concentration only, but see International Studies (p. 118) major)*

German is the global language most often recommended or required for a variety of majors at many American and Canadian colleges.

These majors include, for example, history, music, international studies, art history, anthropology, philosophy, economics, political science and sociology.

German is a key business language in the European Union and in the rapidly growing markets of Central and Eastern Europe. Twenty million people in the world are currently learning German as a foreign language. Germany is Michigan's largest trade partner in Europe.

The German faculty members are committed to an interactive, learner-centered approach to learning and we have designed the curriculum of the German Language Program to advance students’ functional language abilities and knowledge of cultures in the German-speaking world.

German courses, from the first-year through the third-year, are committed to developing students' communicative language skills and cultural awareness through a variety of written, aural, visual, and tactile texts, including literature, art, architecture, music, news, film, video, and internet.

The major in International Studies - German concentration, combines an advanced curriculum in German language and culture with structured training in a professional field. The professional fields include Art Administration, Business and Management, Communications, Computer and Information Sciences, Economics, Engineering, Environmental Studies, Journalism and Screen Studies, Natural Sciences, or Political Science (International Affairs). A third component, cognate courses, which reinforce the international context and enable students to integrate the two primary components.

**Minor or LIBS Concentration only**

A minor or concentration consists of 12 credit hours of upper-level courses in German (GER).

**Global Cultures**

**Minor or LIBS Concentration Only**

The minor or concentration in Global Cultures helps students understand global systems and processes in different world regions. Deeper understanding of global change and the interdependence of the United States with the rest of the world is important to students who wish to be well informed about the contemporary world and prepared for jobs that are affected by global dynamics.

A minor in Global Cultures provides a useful complement to students majoring in a number of different areas in any of the four colleges on campus. Students wishing to study or work abroad, students working with populations from different parts of the world, and students simply...
wishing to expand their horizons to a more global scale, will all benefit from combining their area of study with the Global Cultures minor.

A minor or concentration consists of 15 credit hours of upper-level courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core Area I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLOC 301</td>
<td>Intro to Global Cultures</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 430</td>
<td>International Communications</td>
<td></td>
</tr>
<tr>
<td><strong>Core Area II</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose four courses from at least two groups:</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Group 1: Global Mediated Cultures (CAGG):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 320</td>
<td>Culture and Int'l Business</td>
<td></td>
</tr>
<tr>
<td>ANTH 372</td>
<td>Anthropology of Latin America</td>
<td></td>
</tr>
<tr>
<td>ANTH 373</td>
<td>Anth Persp on the Middle East</td>
<td></td>
</tr>
<tr>
<td>ANTH 374</td>
<td>Anthropology of Europe</td>
<td></td>
</tr>
<tr>
<td>ANTH 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>ANTH 440</td>
<td>Religion and Culture</td>
<td></td>
</tr>
<tr>
<td>COMM 366</td>
<td>Public Comm and Culture Stdies</td>
<td></td>
</tr>
<tr>
<td>COMM 430</td>
<td>International Communications</td>
<td></td>
</tr>
<tr>
<td>COMM 455</td>
<td>Gender and Media Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 481</td>
<td>Gender and Globalization</td>
<td></td>
</tr>
<tr>
<td>GEOG 302</td>
<td>Mapping Our World</td>
<td></td>
</tr>
<tr>
<td>HIST 321</td>
<td>Late Imperial China</td>
<td></td>
</tr>
<tr>
<td>HIST 322</td>
<td>Traditional China</td>
<td></td>
</tr>
<tr>
<td>HIST 323</td>
<td>History of Modern China</td>
<td></td>
</tr>
<tr>
<td>HIST 326</td>
<td>Modern Japan</td>
<td></td>
</tr>
<tr>
<td>HIST 336</td>
<td>The Contmp World, 1945-Present</td>
<td></td>
</tr>
<tr>
<td>HIST 362</td>
<td>Eur and Intern'l Econ History</td>
<td></td>
</tr>
<tr>
<td>HIST 381</td>
<td>Intell Hist of Modern Europe</td>
<td></td>
</tr>
<tr>
<td>HIST 3511</td>
<td>Modern Middle East, 1918-1945</td>
<td></td>
</tr>
<tr>
<td>HUM 433</td>
<td>Writing Women in Renaissance</td>
<td></td>
</tr>
<tr>
<td>JASS 381</td>
<td>Postwar European Cinema</td>
<td></td>
</tr>
<tr>
<td>LIBS 364</td>
<td>The European Union</td>
<td></td>
</tr>
<tr>
<td>MCL 401</td>
<td>Images of Women in Germany</td>
<td></td>
</tr>
<tr>
<td>POL 350</td>
<td>Pol of the Developing Areas</td>
<td></td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td></td>
</tr>
<tr>
<td>POL 385</td>
<td>Middle East Politics</td>
<td></td>
</tr>
<tr>
<td>POL 473</td>
<td>International Security Affairs</td>
<td></td>
</tr>
<tr>
<td>SOC 402</td>
<td>Genocide</td>
<td></td>
</tr>
<tr>
<td>WGST 408</td>
<td>Gender, Pwr &amp; Intl Development</td>
<td></td>
</tr>
<tr>
<td>Group 3: Migration and Diasporas (CAGN):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 320</td>
<td>Culture and Int'l Business</td>
<td></td>
</tr>
<tr>
<td>ANTH 372</td>
<td>Anthropology of Latin America</td>
<td></td>
</tr>
<tr>
<td>ANTH 373</td>
<td>Anth Persp on the Middle East</td>
<td></td>
</tr>
<tr>
<td>ANTH 374</td>
<td>Anthropology of Europe</td>
<td></td>
</tr>
<tr>
<td>ANTH 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>MCL 353</td>
<td>Italian Culture Civilization</td>
<td></td>
</tr>
<tr>
<td>MCL 401</td>
<td>Images of Women in Germany</td>
<td></td>
</tr>
<tr>
<td>ENGL 445</td>
<td>20C/21C Women Authors</td>
<td></td>
</tr>
<tr>
<td>GEOG 310</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG 315</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GLOC 325</td>
<td>Political Islam</td>
<td></td>
</tr>
<tr>
<td>HIST 321</td>
<td>Late Imperial China</td>
<td></td>
</tr>
<tr>
<td>HIST 322</td>
<td>Traditional China</td>
<td></td>
</tr>
<tr>
<td>HIST 323</td>
<td>History of Modern China</td>
<td></td>
</tr>
<tr>
<td>HIST 326</td>
<td>Modern Japan</td>
<td></td>
</tr>
<tr>
<td>HIST 336</td>
<td>The Contmp World, 1945-Present</td>
<td></td>
</tr>
<tr>
<td>HIST 338</td>
<td>Women&amp;Islam Mid East to 1900</td>
<td></td>
</tr>
<tr>
<td>HIST 362</td>
<td>Eur and Intern'l Econ History</td>
<td></td>
</tr>
<tr>
<td>HIST 381</td>
<td>Intell Hist of Modern Europe</td>
<td></td>
</tr>
<tr>
<td>HIST 3511</td>
<td>Modern Middle East, 1918-1945</td>
<td></td>
</tr>
<tr>
<td>HUM 433</td>
<td>Writing Women in Renaissance</td>
<td></td>
</tr>
<tr>
<td>JASS 381</td>
<td>Postwar European Cinema</td>
<td></td>
</tr>
<tr>
<td>LIBS 364</td>
<td>The European Union</td>
<td></td>
</tr>
<tr>
<td>MCL 401</td>
<td>Images of Women in Germany</td>
<td></td>
</tr>
<tr>
<td>POL 350</td>
<td>Pol of the Developing Areas</td>
<td></td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td></td>
</tr>
<tr>
<td>POL 385</td>
<td>Middle East Politics</td>
<td></td>
</tr>
<tr>
<td>POL 473</td>
<td>International Security Affairs</td>
<td></td>
</tr>
<tr>
<td>SOC 402</td>
<td>Genocide</td>
<td></td>
</tr>
<tr>
<td>WGST 408</td>
<td>Gender, Pwr &amp; Intl Development</td>
<td></td>
</tr>
<tr>
<td>Group 4: American Studies in the Global Age (CAGO):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 320</td>
<td>Culture and Int'l Business</td>
<td></td>
</tr>
<tr>
<td>ANTH 372</td>
<td>Anthropology of Latin America</td>
<td></td>
</tr>
<tr>
<td>ANTH 373</td>
<td>Anth Persp on the Middle East</td>
<td></td>
</tr>
<tr>
<td>ANTH 374</td>
<td>Anthropology of Europe</td>
<td></td>
</tr>
<tr>
<td>ANTH 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>ANTH 440</td>
<td>Religion and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 455</td>
<td>Immigrant Cultures and Gender</td>
<td></td>
</tr>
<tr>
<td>COMP 327</td>
<td>Advanced Exposition</td>
<td></td>
</tr>
<tr>
<td>COMP 390</td>
<td>Topics in Composition</td>
<td></td>
</tr>
<tr>
<td>ECON 351</td>
<td>Environmental Economics</td>
<td></td>
</tr>
<tr>
<td>ENST 300</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>ENST 320</td>
<td>Global Climate Change</td>
<td></td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td></td>
</tr>
<tr>
<td>HIST 384</td>
<td>Immigration in America</td>
<td></td>
</tr>
<tr>
<td>HIST 3632</td>
<td>The US in the Middle East</td>
<td></td>
</tr>
<tr>
<td>IB 486</td>
<td>Seminar: International Bus</td>
<td></td>
</tr>
<tr>
<td>LING 383</td>
<td>American English</td>
<td></td>
</tr>
<tr>
<td>LING 484</td>
<td>World Englishs</td>
<td></td>
</tr>
</tbody>
</table>
Greek

(not a field of concentration, see Modern and Classical Languages (http://catalog.umd.umich.edu/undergraduate/college-arts-sciences-letters/modern-classical-languages))

Hispanic Studies

With more than 400 million Spanish speakers, Spanish is one of the most important languages in our globalized world.

Globalization is part of the reality of the twenty-first century and speaking Spanish has almost become a necessity. Thus, the study of the Spanish language and its culture is quite practical. Given the Hispanic presence in the United States and the proximity of our Spanish-speaking neighbors in Latin America, proficiency in Spanish is increasingly advantageous and even necessary for numerous professions and careers.

The Spanish area faculty members recognize the need to provide today’s students with a broad education and perspective. To that end the Spanish area offers three different majors as well as a minor. The three majors are:

1. Hispanic Studies
2. International Studies-Spanish concentration (see International Studies (p. 119) page)
3. Liberal Studies - Hispanic Studies as one of three concentrations

The College of Education, Health and Human Services offers a Secondary Certification Program for teaching Spanish to grades 7-12 (More information and details are available on secondary certification (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification) page.

Prerequisites to the Major

Students desiring to major in Hispanic Studies must successfully complete SPAN 202 or exhibit equivalent Spanish language proficiency.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)
Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements
A minimum of 24 credit hours in upper level Spanish (SPAN) classes must be completed as outlined below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 301</td>
<td>Adv Conversation and Comp I</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 302</td>
<td>Advan Conversation Comp II</td>
<td>3</td>
</tr>
</tbody>
</table>

Specialized Language course (CAHS)
SPAN 305 Language of Business
or SPAN 310 Intro to Hispanic Linguistics

Civilization/Culture course (CAHC)
Select one of the following:
- SPAN 321 Spanish Food and Cuisine
- SPAN 356 Spanish Civilization and Cult
- SPAN 357 Latin American Civiliztn Cult
- SPAN 358 Spain in the Twentieth Century

Literature course (CAHL)
Select one of the following:
- SPAN 350 Masterpiece of Latin Amer Lit
- SPAN 351 Masterpieces of Spanish Lit
- SPAN 353 Latino Literature

400-level Language courses
Select two of the following:
- SPAN 406 Advanced Written Expression
- SPAN 409 Oral Expression
- SPAN 420 Introduction to Translation
- SPAN 421 Advanced Translation
- SPAN 450 Hispanic Cinema
- SPAN 451 Spanish Film
- SPAN 465 Contemporary Spanish Lit

Other Spanish Area Offerings
Select any one 300+ level SPAN

Cognates
Select upper level courses from the following disciplines: AAAS, ANTH, ARBC, ARTH, COMM, COML, ECON, ENGL, ENST, FREN, GEOG, GER, GLOC, HIST, HUM, JASS, LIBS (excluding LIBS 395, LIBS 396, LIBS 397), MCL, PHIL, POL, RELS, SOC, WGST.

Total Credit Hours 30

Notes:

- Majors must take at least one course that deals specifically with Spanish (peninsular - CAPH) topics such as SPAN 321, SPAN 351, SPAN 356, SPAN 358, or SPAN 465 and at least one course that deals specifically with Latin American topics (CALA) such as SPAN 350, SPAN 353, or SPAN 357.

- Majors are encouraged to spend a semester or year in one of the many approved study-abroad programs.

1. A maximum of 54 hours in SPAN may count in the 120 hours required for graduation.
2. At least 18 of the 24 upper level hours in Spanish (SPAN) must be elected at UM-D.
3. A maximum of 3 credits of HUM 485 internship can be used in the cognate area.

Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in Spanish (SPAN).

History
History is the art and science of understanding humanity in time; it seeks to recreate the context of changing human activities, be they cultural, economic, political, or social. Because of its special concern for time, history is a valuable field of study for those who want an understanding of where humanity has been and where it is going, and of the world and their own place in it. Furthermore, this field provides a solid background for those who seek a career in teaching, government work, law, or business, honing skills of critical thinking and analysis. In its role bridging disciplines of the social sciences and the humanities, history also enriches an individual’s personal life and environment.

Advising
History majors should consult with an adviser before the beginning of each semester.

Prerequisites to the Major
Students desiring to major in history are required to elect three of the following courses as prerequisites. The faculty strongly advises that students take these courses during their freshman or sophomore year.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 102</td>
<td>Medieval and Renaissance World</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 104</td>
<td>Chinese Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HIST 105</td>
<td>Japanese Society and Culture</td>
<td>3</td>
</tr>
<tr>
<td>HIST 106</td>
<td>An Intro to the African Past</td>
<td>3</td>
</tr>
<tr>
<td>HIST 108</td>
<td>Latin America: The Colonial Era</td>
<td>3</td>
</tr>
<tr>
<td>HIST 109</td>
<td>Latin America: The Modern Era</td>
<td>3</td>
</tr>
</tbody>
</table>
HIST 111  The American Past I  3
HIST 112  The American Past II  3

Current or former CASL Honors students may use HIST 261, HIST 262, HIST 263 and/or HIST 264 to fulfill these requirements.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

**Major Requirements**

For a major in history, students are required to complete 27 upper level credit hours in history (HIST) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 300</td>
<td>The Study of History</td>
<td>3</td>
</tr>
</tbody>
</table>

**U.S. History (CAUS)**

Select two courses from the following: 6

**Non-U.S. History (CANU)**

Select three courses from the following: 9

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 302</td>
<td>Russian Intellectual History</td>
</tr>
<tr>
<td>HIST 303</td>
<td>The Birth of Civilization</td>
</tr>
<tr>
<td>HIST 306</td>
<td>20th-C Russian Intel History</td>
</tr>
<tr>
<td>HIST 307</td>
<td>Early Russian History</td>
</tr>
<tr>
<td>HIST 308</td>
<td>Imperial Russia</td>
</tr>
<tr>
<td>HIST 309</td>
<td>The Russian Revolutions</td>
</tr>
<tr>
<td>HIST 312</td>
<td>Poland - Study Abroad</td>
</tr>
<tr>
<td>HIST 315</td>
<td>Modern East-Central Europe</td>
</tr>
<tr>
<td>HIST 312</td>
<td>Armenia Ancient Medieval World</td>
</tr>
<tr>
<td>HIST 313</td>
<td>Armenia in the Soviet Period</td>
</tr>
<tr>
<td>HIST 333</td>
<td>Armenians in the Modern World</td>
</tr>
<tr>
<td>HIST 314</td>
<td>England: Tudors and Stuarts</td>
</tr>
<tr>
<td>HIST 315</td>
<td>Modern Britain</td>
</tr>
</tbody>
</table>
The Humanities major has a strong interdisciplinary focus. Students in the major design an individualized course of study in three CASL disciplines from the list below, chosen according to their own interests and in close consultation with a faculty advisor. Students are encouraged to choose fields of study with significant interrelations. A student may, for example, develop a program in Women’s and Gender Studies, Art History, and French; or a program in Communications, Philosophy, and History. Students follow a rigorous course of study while enjoying the stimulus of a program tailored to their special interests and goals. The flexible, individualized design of the Humanities major makes it attractive to a wide range of students. The program offers a broad liberal education for pre-professional students planning to go on in law, journalism, or library science. It works well for independent, intellectually active students who want to pursue their interests in several different disciplines. And for students in the Honors Program, the Humanities major provides an excellent way to continue their interdisciplinary study of history, literature, and society.

### Disciplines included in the Humanities major:
- African and African American Studies
- Arabic Studies
- Art History
- Comparative Literature
- Communication
- English
- French Studies
- German
- Hispanic Studies
- History
- Journalism and Screen Studies
- Linguistics
- Music History
- Philosophy
- Women’s and Gender Studies

### Notes:
1. At least 15 of the 27 upper level credit hours in history (HIST) must be elected at UM-Dearborn.
2. A maximum of 3 hours of History Internship (HIST 3085) may count in the major.

### Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in history (HIST).
Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREN 201 &amp; FREN 202</td>
<td>Intermediate French I and Intermediate French II</td>
<td>8</td>
</tr>
<tr>
<td>GER 201 &amp; GER 202</td>
<td>Intermediate German I and Intermediate German II</td>
<td></td>
</tr>
<tr>
<td>SPAN 201 &amp; SPAN 202</td>
<td>Intermediate Spanish I and Intermediate Spanish II</td>
<td></td>
</tr>
<tr>
<td>MCL 205 &amp; MCL 206</td>
<td>Intermediate Ancient Greek and Intermediate Ancient Greek II</td>
<td>12</td>
</tr>
</tbody>
</table>

Four courses, from two different disciplines, 100-200 level, from the following disciplines: Art History (ARTH), Communication (COMM), Comparative Literature (COML), English (ENGL), Journalism and Screen Studies (JASS), French Studies (FREN), German (GER), Hispanic Studies (SPAN), History (HIST), Linguistics (LING), Music History (MHIS), Philosophy (PHIL).

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
<td></td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
<td></td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
<td></td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
<td></td>
</tr>
</tbody>
</table>

Major Requirements

Select 9 credit hours (upper level) each in any three of the following areas: African American Studies (AAAS), Arabic Studies (ARBC), Art History (ARTH), Communication (COMM), Comparative Literature (COML), English (ENGL), Journalism and Screen Studies (JASS), French Studies (FREN), German (GER), Hispanic Studies (SPAN), History (HIST), Linguistics (LING), Music History (MHIS), Philosophy (PHIL), Women’s and Gender Studies (WGST).

Select 9 additional credit hours in one of the two following tracks:

**Track A:**
- HUM 3975 Humanities Thesis/Project
- One Humanities (HUM) Upper Level Course

**Track B:**
- HUM 399 Independent Studies in Hum
  - Two Humanities (HUM) Upper Level Courses

Total Credit Hours 36

Notes:

1. A maximum of 44 credit hours in any single discipline of AAAS, ARBC, ARTH, COML, COMM, ENGL, FREN, GER, HIST, JASS, LING, MHIS, PHIL, SPAN, WGST may count in the 120 hours required for graduation.
2. At least 15 of the 36 upper level credit hours of the major must be elected at UM-D.
3. HUM 485/HIST 3085 Internship cannot be used to fulfill major requirements.

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level courses in humanities (HUM).

Individual Program of Study

The Individual Program of Study (IPS) is an option for first year students at UM-Dearborn under the new Dearborn Discovery Core general education requirements. The Individual Program may not duplicate an already existing major in the College of Arts, Sciences, and Letters and it is recommended that an interdisciplinary curriculum, in the true spirit of a Liberal Arts education, be created.

- **Example 1:** German Studies; language and culture, as well as the history of German speaking countries. An interdisciplinary major could be created including course work in language, philosophy, history, art history, music history, global studies and environmental science at the 300 and above level.
- **Example 2:** Middle Eastern History; Arabic culture and literature as well as early civilization history courses. An interdisciplinary major could be created including course work in Islamic Art History and Philosophy, along with Middle East Economics and Political Science at the 300 and above level.
After completing 30 hours at UM-Dearborn with a 3.25 or higher GPA, a rising sophomore would seek out a Professor on a tenure track faculty appointment to propose their individual major idea. Anyone interested should plan to write up the proposal before meeting with the possible faculty advisor, or if meetings have already occurred, frame the discussions that have occurred in the written proposal with a possible title.

A minimum of 24 hours of 300 level or above course work is required. Keep in mind the title will go on the official transcript at graduation. If the proposed faculty advisor is an Assistant Professor, an Associate or Full Professor must also be brought into the plan before approval will be granted.

Approval requires:

- A title
- A formal program of study, unlike any other taught in the College
- The student rationale
- The faculty rationale
- A proposed regular advising schedule so student and faculty member will remain in regular communication

Once written up, the proposal must move to the Department Executive Committees from which curriculum has been pulled for approval. Followed by approval from the IPS Committee and UCDC.

For more information, contact the CASL Office of Advising and Student Records: room 1039 CB; casl-advising@umd.umich.edu or 313-593-5293.

## Integrated Science

Integrated Science is a degree designed for students seeking to teach science in high schools. The sixty credit hour degree meets the State of Michigan's requirements for 12 credit hours each in Biology, Chemistry, Earth Science and Physics. An additional 12 credit hours in any one of these areas provides the required minor in science. Students successful completing this program and passing the Michigan Test for Teacher Certification in Integrated Science (secondary) will meet the standards for the 'highly qualified' designation. This degree is only for those students who are also seeking a certificate in secondary education from the College of Education, Health, and Human Services. It is also a degree intended for students who wish to teach in smaller school districts. Students seeking employment in large districts should consider majoring in Biology, Chemistry, Earth Science or Physics and minoring in another of these 4 areas.

The degree requires that certain courses in each of the four areas be taken. The remaining hours will consist of electives from the list of courses below. Other courses may be possible. Students should consult with their advisor about course selection. In addition to regularly offered courses in Natural Sciences, students must also elect at least one of the NSCI 331, NSCI 332 or NSCI 333 courses. These latter courses will also count towards the 12 hrs for the minor.

Students will need to consult with advisors in the College of Education, Health, and Human Services in order to meet the certification requirements (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification) for teaching in secondary schools.

## Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

### Foundational Studies

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

### Areas of Inquiry

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

### Capstone

- Capstone (GECE) – 3 Credits (p. 22)

## Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

## Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one or more courses from the list below to complete 12 hours:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 301</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>Ecology</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>General Genetics</td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Field Biology</td>
</tr>
<tr>
<td>BIOL 324</td>
<td>Invertebrate Zoology</td>
</tr>
<tr>
<td>BIOL 333</td>
<td>Plant Biology</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>BIOL 385</td>
<td>Microbiology</td>
</tr>
<tr>
<td>BIOL 419</td>
<td>Behavior and Evolution</td>
</tr>
<tr>
<td>NSCI 333</td>
<td>Inquiry: PBL in Life Science</td>
</tr>
</tbody>
</table>

**Chemistry:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Gen Chemistry IB</td>
<td></td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 146</td>
<td>General Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one or more courses from the list below to complete 12 hours: 2-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 303</td>
<td>Inorganic Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td></td>
</tr>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td></td>
</tr>
</tbody>
</table>

**Earth Science:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>Introductory Astronomy Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one or more courses from the list below to complete 12 hours: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 310</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG 218</td>
<td>Historical Geology</td>
<td></td>
</tr>
<tr>
<td>GEOG 305</td>
<td>Intro to GIS</td>
<td></td>
</tr>
<tr>
<td>GEOG 340</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOG 342</td>
<td>Physical Oceanography</td>
<td></td>
</tr>
<tr>
<td>GEOG 370</td>
<td>Environmental Geology</td>
<td></td>
</tr>
<tr>
<td>GEOG 372</td>
<td>Energy Resources</td>
<td></td>
</tr>
<tr>
<td>GEOG 377</td>
<td>Field Methods</td>
<td></td>
</tr>
<tr>
<td>NSCI 332</td>
<td>Inquiry: Mich Earth Science</td>
<td></td>
</tr>
</tbody>
</table>

**Physics:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 150</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 126</td>
<td>Introductory Physics II</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 151</td>
<td>General Physics II</td>
<td></td>
</tr>
</tbody>
</table>

Select one or more courses from the list below to complete 12 hours: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 305</td>
<td>Contemporary Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 360</td>
<td>Instrumentation for Scientists</td>
<td></td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS 403</td>
<td>Electricity and Magnetism</td>
<td></td>
</tr>
<tr>
<td>PHYS 405</td>
<td>Optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 406</td>
<td>Thermal and Statistical Physic</td>
<td></td>
</tr>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration in one of the Four Areas Above: Biology; Chemistry; Earth Science; Physics.**

Students will select 12 additional upper level credit hours in one of the four areas listed above. 12

**Total Credit Hours** 60-63

**Notes:**

1. Up to three credit hours of independent study in one of the four areas listed above may be applied towards the minor.

2. Students may graduate from the College of Arts, Sciences, and Letters with a Bachelor of Science in Integrated Science only if also being awarded secondary certification, as recommended by the College of Education, Health, and Human Services. Student who declare Integrated Science but do not subsequently qualify for secondary certification, or otherwise choose not to pursue secondary certification, must choose another major.

1. At least one course from NSCI 331, NSCI 332, or NSCI 333 must be elected.

2. The credits for NSCI 331 can be attributed to both Chemistry and Physics.

3. Any upper division courses accepted for credit towards a degree in the area will meet this requirement.

4. Students choosing Biology must include at least one course from each of the following categories: Cellular and Molecular (C ACM), Organismal (CA OB), Population and Environmental (CAPE). See Degree Works for list of courses.

**International Studies**

The interdisciplinary major in International Studies combines foreign language and cultural studies with a thorough grounding in a professional area such as business and management, economics, computer information science, communication, or political science. The major is designed to prepare students for careers in international relations and business or other fields with an international dimension.

The major consists of three components at the upper level:

I  Foreign Language and Cultural Component (18 credit hours upper level plus lower level prerequisites) devoted to foreign language, culture, and civilization (including optional study abroad). Languages: Arabic, French, German, Spanish.

II  Professional Component (generally 15 credit hours upper level plus lower level prerequisites) devoted to the basic skills of art administration (museum studies), business and management, communications, computer and information science, economics, engineering, environmental studies, journalism and screen studies, natural sciences, or political science (international affairs).

III  Cognates (9 credit hours upper level) devoted to studies (and optional internship experiences) which will provide the larger international context and additional useful skills to coordinate the subjects of Components I and II.

This program is also eminently suitable as a second major for students who want to add a strong international component to their major field of interest. In this case, courses taken for their first major may also fulfill "Professional Component" requirements in International Studies; e.g., students majoring in art history, business and management, communications, computer information science, economics, engineering, environmental studies, natural sciences, or political science (international affairs) can add International Studies as a second major by fulfilling requirements of Components I (Foreign Languages and Culture) and III (Cognates) and counting their first major as Component II (Professional).

**Advising**

International Studies majors are urged to consult with faculty in the foreign languages and the other professional areas before the beginning of each semester.
Students with a high school background of three to four years study of Arabic, French, German or Spanish would be able to begin their studies of the same foreign language at UM-Dearborn with the 201, 202, or even 301 foreign language class. The curriculum for such students would be more flexible than that previously described. Students with a high school foreign language background would have an additional 8-11 hours for electives in areas of their special interests.

**Prerequisites to the Major**
For prerequisites check Components I and II under requirements for major.

**Dearborn Discovery Core Requirement**
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**
Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**
Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
<td></td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
<td></td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
<td></td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
<td></td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
<td></td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
<td></td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
<td></td>
</tr>
</tbody>
</table>

**Major Requirements**

**Component I. Foreign Language and Culture**
(Select one language: Arabic, French, German or Spanish)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth-semester proficiency (202 level) or equivalent in Arabic, French, German or Spanish</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Required courses**

<table>
<thead>
<tr>
<th>Language</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language 301</td>
<td>Advanced Conversation and Composition I</td>
<td>3</td>
</tr>
<tr>
<td>Language 302</td>
<td>Advanced Conversation and Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Twelve credits of additional upper-level courses in the chosen language</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 18

A literature course in the chosen language is highly encouraged.

**Notes**
Students are encouraged to spend a semester or year in one of the many approved study-abroad programs.

Students who wish to study two foreign languages within the framework of the International Studies Program should see the International Studies Director to design an acceptable balanced curriculum.

Normally students will not be permitted to count the Humanities Internship (HUM 485) as a part of the above concentration requirements. They are encouraged to elect an internship as part of their Cognates.

**Component II. Professional Studies**
Select one Professional Studies concentration from:

**Option A. Business and Management**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td>4</td>
</tr>
</tbody>
</table>

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from (CAIB):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>COMM 340</td>
<td>Professional Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 430</td>
<td>International Communications</td>
<td>3</td>
</tr>
<tr>
<td>IB 486</td>
<td>Seminar: International Bus</td>
<td>3</td>
</tr>
<tr>
<td>MKT 457</td>
<td>Globl Mrktng&amp;Consumr Cultre</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 31

**Option B. Computer and Information Science**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
</tbody>
</table>
### Option C. Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
</tbody>
</table>

**Required Courses**

- ECON 447 International Finance 3
- ECON 448 International Trade 3

Select one additional course from the following: 3

- ECON 362 Eur and Intl Economic Hist
- ECON 442 Economic Development
- ECON 444 Economies of the Middle East

Select two additional courses from the following (CAIE): 6

- ECON 301 Intermediate Macroeconomics
- ECON 302 Intermediate Microeconomics
- ECON 305 Economic Statistics
- ECON 362 Eur and Intl Economic Hist
- ECON 442 Economic Development
- ECON 444 Economies of the Middle East
- ECON 4015 Introduction to Econometrics

Total Credit Hours 28

1 MATH 113 or MATH 115 can be substituted.

### Option D. Museum Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 101</td>
<td>Western Art to 1400</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 102</td>
<td>Western Art from 1400</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 103</td>
<td>Arts of Asia</td>
<td>3</td>
</tr>
<tr>
<td>or ARTH 106</td>
<td>History of Western Architect</td>
<td></td>
</tr>
</tbody>
</table>

**Required Courses**

Select four courses from four different areas: 12

- Asian/Non-Western (CAAS):
  - ARTH 311 Art of China
  - ARTH 312 Art of Japan
  - ARTH 313 Chinese Painting
  - ARTH 315 Early Chinese Art and Archaeol
  - ARTH 384 Islamic Architecture
  - ARTH 385 Islamic Decorative Arts

Also Required

- ARTH 410 Museum Practice Seminar I 1

Total Credit Hours 21

### Option E. Political Science (International Affairs)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 201</td>
<td>Intro Comparative Government</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following courses (CAIM): 3

- CIS/CCM 150 Computer Science I
- POL 300 Political Analysis
- PSYC 381 Prin of Stat and Exper Design
Required Courses
Select five of the following 3 credit hour courses (CAIP): 15

- LIBS 364 The European Union
- POL 341 Canadian Politics
- POL 350 Pol of the Developing Areas
- POL 361 American Foreign Policy
- POL 371 Problems in Intl Politics
- POL 375 Great Pwrs Comp and Conflict
- POL 385 Middle East Politics
- POL 450 Revolution
- POL 451 Peace and War
- POL 471 American Foreign Policy I
- POL 472 American Foreign Policy II
- POL 473 International Security Affairs
- POL 481 Terrorism & US Natl Security

Total Credit Hours 27

Note: Normally, students will not be permitted to count a Political Science Internship (POL 494 POL 495 POL 496 POL 497) as part of the above concentration requirements. They are encouraged to elect an internship as part of their Cognates.

Option F. Environmental Studies
Prerequisites
3 courses to be chosen from at least two of the following areas:

Area A. ESCI 275 or ESCI 301 (CAPS)
Area B. ENST 201, ENST 203, ENST 204; GEOL 118 (CAPB)
Area C. CIS 150; CIS 112 (CAPU)

Required Courses
Select three additional courses from the following (CAIV): 9

- ENST 300 Urban Geography
- ENST 325 Environmental Politics
- ENST 330 Land Use Planning and Mgmt
- ENST 340 Remote Sensing
- ENST 351 Environmental Economics
- ENST 365 Environmental Psychology
- ENST 385 Environmental Internship
- ENST 390 Topics in Environmental Stds
- ENST 474 Environmental Education
- ENST 486 Environmental Interpretation

Total Credit Hours 15

Note: Environmental Science (ESCI) courses (some of which have additional prerequisites) may be substituted by Petition.

Option G. Natural Sciences

Required Courses
Select one of the following: 15

- A minimum of 15 hours 300-4999 level in any one Dept. of Natural Science discipline from: ASTR, BIOL, BCHM, CHEM, ESCI, GEOL, MICR, PHYS (plus all lower level prerequisites).
- Fulfillment of all major requirements in any natural science discipline.

Total Credit Hours 15

Option H. Engineering
Required Courses
Fulfillment of all requirements for a degree in any of the Engineering disciplines will satisfy all Component II (Professional) requirements for the International Studies major.

Due to the high number of prerequisites needed to get into upper-level engineering classes, there is no regular 15-hour(professional) component for the various engineering disciplines.

Option I. Communication
Prerequisites

Required Courses
Five upper-level courses in COMM/SPEE. Of the five courses, one course must be in a Speech (SPEE) upper level course.

Total Credit Hours 21

Option J. Journalism and Screen Studies
Prerequisites

Required Courses
Select five courses from the following:

Media Tools (CAJB):
Select two courses from: 6

- JASS 303 Media Design & Animation
- JASS 307 Copy Editing
- JASS 310 Narrative Journalism
- JASS 312 Media Performance
- JASS 315 Media Productn for Metro Comm
- JASS 330 Feature Writing
- JASS 331 Online Reptrng,Rsrch,Writing
- JASS 345 Audio Production
- JASS 350 Digital Film & Television
- JASS 3015 Advanced Reporting
- JASS 401 Interpretive Journalism
- JASS 402 Investigative Reporting
- JASS 405 New and Emerging Media
JASS 410  Advanced Media Production
JASS 423  Comm Design for Web & Mobile
JASS 467  Script-Writing Workshop
Genres, Modes, and Contexts of Storytelling (CAJM):
Select two courses from: 6
JASS 302  Media Law and Ethics
JASS 332  Creating the Graphic Novel
JASS 333  Sports Reporting and Writing
JASS 334  Science and Environmental Jour
JASS 335  Multimedia and Music
or JASS 336 Film and Music
JASS 338  Business/Automotive Reporting
JASS 357  National Cinemas
JASS 370  Narratives of Film and Lit
JASS 378  History of U.S. Broadcasting
JASS 380  History of American Journalism
JASS 381  Postwar European Cinema
JASS 385  Black Cinema
JASS 387  Gender, Sex, Pwr Screen Studies
JASS 390  Topics in JASS
JASS 398  Independent Study in JASS
JASS 403  Issues in Cyberspace
JASS 406  History & Theory of Documentary
JASS 413  Photojournalism
JASS 436  Memoir and Travel Writing
JASS 457  American Cinema
JASS 477  Ethnographic Film
COMM 430  International Communications
The remaining one course (3 credits) may be any upper level JASS course 3

Total Credit Hours 18

Component III. Cognates
This component is designed to enhance the international dimension of the major and to coordinate the language and culture studies with professional preparation. Students will take three courses (9 hours, 300+ level) in fields such as anthropology, art history, business and management, economics, foreign cultures, history, and political science. Courses should be selected in accordance with students' particular needs. See CASL Advising website for the approved list of courses.

Notes:

1. Students may elect the Humanities Internship (HUM 485) for a maximum of three hours and avail themselves of the on-job experience in a business, governmental, or cultural institution. See the INST Program Director for Internship Guidelines.
2. Students with appropriate background in political science may elect one of the various political science internships POL 494, POL 495, POL 496, POL 497 for a maximum of three hours.
3. Students may use upper-level courses, especially culture/civilization, literature, or film courses, in another foreign language for Cognate credit. Students may not use courses in the same foreign language designated as Component I for Cognates credit.
4. Students may not use identical areas for both Components II and III, e.g., students with Professional Studies (Component II) in Business and Management may not select Business and Management courses for Cognates (Component III) credit.
5. Students' course choice in Components II and III must include a minimum total of two courses with a clearly international dimension; a greater number is highly desirable.
6. Students may transfer no more than 9 upper level hours in Components I, 50% of credits in Component II and 3 credits in Component III (Cognates).

Journalism and Screen Studies
The Journalism and Screen Studies (JASS) discipline is dedicated to storytelling—its forms, techniques, and technologies. We offer individual courses on the genres, including news, features and photojournalism; narrative journalism/creative nonfiction; documentary and feature film. In all courses, JASS stresses convergent media, interdisciplinary, and the underlying research and writing skills that connect us as journalists, documentarians and filmmakers. The program looks at storytelling as a means to both inform and entertain.

The ability to analyze and interpret work in a specific medium and to view it within a variety of interpretive contexts provides a foundation for all forms of storytelling, from news reportage to feature films. While we offer individual courses in each medium, all courses include analytical components and assignments, and all stress the interdependency of theory and practice, form and content.

JASS makes current and emerging technologies available to all its students, emphasizing these technologies, not as ends in themselves but as tools of intellectual and creative expression.

Experiential Education (Internship, Co-op, or Senior Thesis)
All JASS students are required to participate in an internship, co-op or senior thesis. There is a seminar component to both the internship and the co-op.

The senior thesis is available only to students who have prior JASS industry experience.

Required Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASS 2015</td>
<td>Fundamentals of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>JASS 248</td>
<td>Introduction to Screen Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 6

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

Language Courses
Ancient Greek I and II MCL 105 and MCL 106
Arabic I and II ARBC 101 and ARBC 102
Armenian I and II MCL 111 and MCL 112
French I and II FREN 101 and FREN 102
German I and II GER 101 and GER 102
Latin I and II LAT 101 and LAT 102
Spanish I and II SPAN 101 and SPAN 102

Journalism and Screen Studies Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Experiential Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>3</td>
</tr>
<tr>
<td>HUM 485</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>LIBS 395</td>
<td>Co-op Education Work Assignmnt (co-op)</td>
<td></td>
</tr>
<tr>
<td>JASS 497</td>
<td>JASS Thesis (senior thesis; Faculty approval required)</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Required Narrative Writing Course</td>
<td>3</td>
</tr>
<tr>
<td>JASS 310</td>
<td>Narrative Journalism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Area of Study</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Select Option A Journalism or Option B Screen Studies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>27</td>
</tr>
</tbody>
</table>

Option A: Journalism

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Core Area I: Media Tools (CAMJ)</td>
<td>12</td>
</tr>
<tr>
<td>JASS 303</td>
<td>Media Design &amp; Animation</td>
<td></td>
</tr>
<tr>
<td>JASS 3015</td>
<td>Advanced Reporting</td>
<td></td>
</tr>
<tr>
<td>JASS 307</td>
<td>Copy Editing</td>
<td></td>
</tr>
<tr>
<td>JASS 312</td>
<td>Media Performance</td>
<td></td>
</tr>
</tbody>
</table>

Option B: Screen Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Core Area I: Media Tools (CATS)</td>
<td>12</td>
</tr>
<tr>
<td>JASS 303</td>
<td>Media Design &amp; Animation</td>
<td></td>
</tr>
<tr>
<td>JASS 312</td>
<td>Media Performance</td>
<td></td>
</tr>
<tr>
<td>JASS 315</td>
<td>Media Productn for Metro Comm</td>
<td></td>
</tr>
<tr>
<td>JASS 331</td>
<td>Online Reptrting,Rsrch,Writing</td>
<td></td>
</tr>
<tr>
<td>JASS 345</td>
<td>Audio Production</td>
<td></td>
</tr>
<tr>
<td>JASS 350</td>
<td>Digital Film &amp; Television</td>
<td></td>
</tr>
<tr>
<td>JASS 405</td>
<td>New and Emerging Media</td>
<td></td>
</tr>
<tr>
<td>JASS 410</td>
<td>Advanced Media Production</td>
<td></td>
</tr>
<tr>
<td>JASS 423</td>
<td>Comm Design for Web &amp; Mobile</td>
<td></td>
</tr>
<tr>
<td>JASS 467</td>
<td>Script-Writing Workshop</td>
<td></td>
</tr>
</tbody>
</table>

Required Core Area II: Genres, Modes, & Contexts of Storytelling (CAGM)
Select 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASS 332</td>
<td>Creating the Graphic Novel</td>
<td></td>
</tr>
<tr>
<td>JASS 335</td>
<td>Multimedia and Music</td>
<td></td>
</tr>
<tr>
<td>or JASS 336</td>
<td>Film and Music</td>
<td></td>
</tr>
</tbody>
</table>
JASS 357  National Cinemas
JASS 370  Narratives of Film and Lit
JASS 378  History of U.S. Broadcasting
JASS 381  Postwar European Cinema
JASS 385  Black Cinema
JASS 387  Gender, Sex, Power Screen Studies
JASS 390  Topics in JASS
JASS 398  Independent Study in JASS (approved contract required)
JASS 403  Issues in Cyberspace
JASS 404  Video Game Studies & Criticism
JASS 406  History & Theory of Documentary
JASS 413  Photojournalism
JASS 436  Memoir and Travel Writing
JASS 457  American Cinema
JASS 477  Ethnographic Film
JASS 497  JASS Thesis (Faculty approval required)
HUM 485  Internship (second internship)

Total Credit Hours 21

Notes:

1. A maximum of 63 credit hours of JASS may count toward the 120 credit hours required for graduation.
2. At least 15 of the 27 upper level credit hours in the JASS major must be elected at UM-D.
3. The Thesis option (JASS 497) is only available to students who have significant professional experience in their area of specialization within Journalism or Screen Studies and requires the approval of the JASS faculty advisor.
4. Students wishing to undertake an independent study (JASS 398) must first secure the approval of the JASS faculty member willing to serve as advisor.
5. A maximum of 6 credits of internship (HUM 485) or co-op (LIBS 395, LIBS 396, LIBS 397) may count toward the major (3 credits to fulfill the experiential education requirement and 3 credits as a second internship/co-op taken in a term separate from the first internship/co-op and may apply toward the Genres, Modes, and Contexts area II.

Minor or LIBS Concentration

A minor or concentration in Journalism and Screen Studies (JASS) consists of 12 credit hours of approved upper-level courses. At least two of the courses (6 credits) must be in the "Media Tools" area and at least two courses (6 credits) must be in the "Genres, Modes and Contexts of Storytelling" area.

Code  Title

Prerequisites
JASS 2015  Fundamentals of Journalism
or JASS 248  Introduction to Screen Studies

Media Tools (CAJB)
Choose two from:
JASS 303  Media Design & Animation
JASS 307  Copy Editing
JASS 310  Narrative Journalism

Credit Hours 6

Genres, Modes, and Contexts of Storytelling (CAJM)
Choose two from:
JASS 302  Media Law and Ethics
JASS 332  Creating the Graphic Novel
JASS 333  Sports Reporting and Writing
JASS 334  Science and Environmental Journalism
JASS 335  Multimedia and Music
or JASS 336  Film and Music
JASS 338  Business/Automotive Reporting
JASS 357  National Cinemas
JASS 370  Narratives of Film and Lit
JASS 378  History of U.S. Broadcasting
JASS 380  History of American Journalism
JASS 381  Postwar European Cinema
JASS 385  Black Cinema
JASS 387  Gender, Sex, Power Screen Studies
JASS 390  Topics in JASS
JASS 398  Independent Study in JASS (approved contract required)
JASS 403  Issues in Cyberspace
JASS 404  Video Game Studies & Criticism
JASS 406  History & Theory of Documentary
JASS 413  Photojournalism
JASS 436  Memoir and Travel Writing
JASS 457  American Cinema
JASS 477  Ethnographic Film
COMM 430  International Communications

Total Credit Hours 15

Law and Society

Minor or LIBS Concentration only

The Law and Society minor/concentration is a program of study that is intended for the understanding of law in its historical and social contexts. Through study of the evolution of law from ancient societies to our contemporary day, students are encouraged to see law as a dynamic institution shaped by historical forces and social values. Substantively, emphasis is given to the study of such contemporary legal issues as human freedoms and civil rights, social responsibility and the treatment
of criminals, constitutional interpretation and the enunciation of citizen rights.

The Law and Society field takes up studies of the legal environment of various institutional sectors in our society. The health care, the family, and mental health systems all have detailed legal environments setting standards for professional conduct, responsibilities of various participants and enabling legislation of various kinds. Other fields, such as communications media, business enterprises, and the military also have fully elaborated legal environments.

Minor or LIBS Concentration only

The Law and Society Minor/Concentration is structured as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 240</td>
<td>Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 234</td>
<td>Symbolic Logic</td>
<td></td>
</tr>
<tr>
<td>or PHIL 350</td>
<td>Symbolic Logic</td>
<td></td>
</tr>
</tbody>
</table>

Core Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 453</td>
<td>Sociology of Law</td>
<td>3</td>
</tr>
</tbody>
</table>

Four Track Courses

Select two from Group A and two from Group B:

Group A: Legal environments of industries and professions (CABL):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASS 302</td>
<td>Media Law and Ethics</td>
<td></td>
</tr>
<tr>
<td>JASS 403</td>
<td>Issues in Cyberspace</td>
<td></td>
</tr>
<tr>
<td>ENST 445</td>
<td>Environmental Law</td>
<td></td>
</tr>
<tr>
<td>PHIL 442</td>
<td>Medical Ethics</td>
<td></td>
</tr>
<tr>
<td>POL 364</td>
<td>Health Pol and Administration</td>
<td></td>
</tr>
<tr>
<td>SOC 454</td>
<td>Mental Health and the Law</td>
<td></td>
</tr>
<tr>
<td>SOC 456</td>
<td>Health Care and the Law</td>
<td></td>
</tr>
<tr>
<td>SOC 457</td>
<td>Family, Aging and the Law</td>
<td></td>
</tr>
<tr>
<td>PDED 425</td>
<td>Educator and the Law</td>
<td></td>
</tr>
<tr>
<td>ACC 360</td>
<td>Federal Income Taxation</td>
<td></td>
</tr>
<tr>
<td>HRM 408</td>
<td>Employment Relations</td>
<td></td>
</tr>
<tr>
<td>LE 452</td>
<td>The Legal Environment of Bus</td>
<td></td>
</tr>
</tbody>
</table>

Group B: Structure and process of legal institutions (CABS):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 471</td>
<td>Comp Crim Justice Systems</td>
<td></td>
</tr>
<tr>
<td>ECON 325</td>
<td>Economics of Pov and Discrm</td>
<td></td>
</tr>
<tr>
<td>ECON 385</td>
<td>Public Choice</td>
<td></td>
</tr>
<tr>
<td>ECON 433</td>
<td>Antitrust and Regulation</td>
<td></td>
</tr>
<tr>
<td>ECON 4021</td>
<td>Economics of the Labor Sector</td>
<td></td>
</tr>
<tr>
<td>ECON 4085</td>
<td>Public Finance</td>
<td></td>
</tr>
<tr>
<td>PHIL 335</td>
<td>Philosophy of Law</td>
<td></td>
</tr>
<tr>
<td>PHIL 445</td>
<td>Contemporary Ethical Issues</td>
<td></td>
</tr>
<tr>
<td>POL 304</td>
<td>American Political Thought</td>
<td></td>
</tr>
<tr>
<td>POL 312</td>
<td>Legislative Process</td>
<td></td>
</tr>
<tr>
<td>POL 315</td>
<td>The American Presidency</td>
<td></td>
</tr>
<tr>
<td>POL 316</td>
<td>The American Judicial Process</td>
<td></td>
</tr>
<tr>
<td>POL 362</td>
<td>Women, Politics, and the Law</td>
<td></td>
</tr>
</tbody>
</table>

Leadership & Communication in Organizations

Minor or LIBS Concentration only

15 credits of upper level course work. Include courses from three areas as indicated:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 317</td>
<td>Case Studies in Tech Writing</td>
<td>6</td>
</tr>
<tr>
<td>COMM 340</td>
<td>Professional Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 430</td>
<td>International Communications</td>
<td></td>
</tr>
<tr>
<td>COMM 450</td>
<td>Principle of Organization Comm</td>
<td></td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td></td>
</tr>
<tr>
<td>SPEE 310</td>
<td>Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>SPEE 320</td>
<td>Public Argument and Advocacy</td>
<td></td>
</tr>
<tr>
<td>SPEE 330</td>
<td>Argumentation and Debate</td>
<td></td>
</tr>
<tr>
<td>SPEE 340</td>
<td>Persuasion &amp; Social Movements</td>
<td></td>
</tr>
<tr>
<td>SPEE 430</td>
<td>Small Group Communication</td>
<td></td>
</tr>
</tbody>
</table>

Leadership Studies (CALB)

Select one course from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 3651</td>
<td>Women Leadership/Social Change</td>
<td>3</td>
</tr>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td></td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td></td>
</tr>
<tr>
<td>PSYC 422</td>
<td>Psychology of Leadership</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions of Organizational Behavior (CADO)

Select two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>6</td>
</tr>
<tr>
<td>MKT 360</td>
<td>Marketing and Society</td>
<td></td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 321</td>
<td>Attitude and Social Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 322</td>
<td>Psychology of Prejudice</td>
<td></td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Psc of Interpersonal Relation</td>
<td></td>
</tr>
<tr>
<td>PSYC 363</td>
<td>Cognitive Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 3955</td>
<td>Diversity and the Workplace</td>
<td></td>
</tr>
<tr>
<td>PSYC 405</td>
<td>Gender Roles</td>
<td></td>
</tr>
<tr>
<td>PSYC 4305</td>
<td>Psychology in the Workplace</td>
<td></td>
</tr>
<tr>
<td>PSYC 431</td>
<td>Organizational Entry</td>
<td></td>
</tr>
<tr>
<td>PSYC 464</td>
<td>Applied Cognitive Psychology</td>
<td></td>
</tr>
</tbody>
</table>
Liberal Studies

Whereas to major in a traditional field of study implies, among other things, that a student must take at least 24 upper-level credit hours in the field of study chosen and at least six upper-division credit hours of cognates in related fields, a major in Liberal Studies permits the student to choose three concentrations which, together, form a coherent and academically sound program that best responds to the interests, needs, and goals of the student.

This program is designed primarily for students who wish to receive a AB or BS but who prefer a program that offers a higher degree of flexibility than the more structured standard concentrations. The AB in Liberal Studies may also appeal to pre-law students.

To meet the requirements for this program, a student must complete at least 48 credit hours in courses numbered 300 or above, of which at least 30 credit hours must be completed in CASL. At least two concentrations must be from CASL. No credit hours transferred from a community college and no lower-level courses from a four-year institution may be included in the credit hours required for any concentration. Further, a student may not select a course on a Pass/Fail basis to fulfill the 12 or 15+ credit hours in any of the three concentrations.

For additional information regarding the Liberal Studies major, please contact the CASL Advising Office, 1039 CB, 313-593-5293.

Note: There may be prerequisites for the upper-level courses. This is especially true for concentrations in the sciences, mathematics, computer science, business, and engineering. Consult course descriptions.

Linguistics

The scientific discipline of linguistics emerged in the twentieth century. It is distinguished from earlier approaches to language chiefly by its focus on spoken and signed language as well as written, and by its emphasis on describing actual language as it is used rather than prescribing what is correct and proper. In pursuing these aims a set of rigorous methods and an extensive technical vocabulary have been devised. Spoken language is a complex system of organized sound, and any adequate analysis requires precision and detail at several levels.

UM-Dearborn Linguistics faculty focus on sociolinguistics and the structure, history, and social functions of the English language in contact with other languages, drawing on the methods and theoretical insights of the World Englishes approach.

The Linguistics Discipline offers courses contributing to the following programs: the ESL Endorsement Certificate (College of Education, Health, and Human Services), the Language Arts Elementary Education major (College of Education, Health, and Human Services), the English major with Secondary Certification (CASL and College of Education, Health, and Human Services), and the Linguistics minor or concentration for the Liberal Studies major (CASL). Linguistics courses also fulfill the role of cognates within certain CASL majors.

CASL Minor or LIBS Concentration Only

Students may earn a minor in Linguistics or have Linguistics as a concentration for the Liberal Studies (LIBS) major by completing 12 credit hours of upper-level courses in Linguistics (LING).

(minor only)

For Language Arts for Elementary Education please follow the link here (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/elementary-k-8-certification-program).

For English with Secondary Education Certification, please follow the link here (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification).

Students majoring in Language Arts Education and English with Secondary Education are required to take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics ¹</td>
<td>3</td>
</tr>
<tr>
<td>LING/ENGL 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>LING/ENGL 482</td>
<td>History of the English Lang</td>
<td>3</td>
</tr>
<tr>
<td>One additional LING elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

¹ Is the prerequisite for both of these courses and covers material examined in the Michigan State Teacher Certification Examination.

For ESL Endorsement Certificate, please follow the link here (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification).

Students in the English as a Second Language (ESL) Endorsement Program are required to take 15 credit hours of linguistics courses, including three required and two electives.
Mathematics

Mathematics is perhaps the most precise of human languages.

With it, scientists and engineers have been able to describe and understand complex physical and social phenomena. As a language, together with its axiomatic underpinnings, it is a much-explored structure in itself. These two views of Mathematics, its application to things external and to things internal, represent a distinction between Applied and Pure Mathematics.

Students who desire to major or minor in mathematics do so for a number of reasons. Some of these include

1. those who wish specifically to become teachers of mathematics in high school;
2. those whose interests lie primarily in the study of mathematics as a science, the purpose of such students being usually to continue their studies at the graduate level;
3. those whose interests lie in the field of engineering and/or physics, with emphasis on applied mathematics;
4. those whose interests lie in the fields of biology, chemistry, or economics;
5. those who wish to study mathematical statistics;
6. those whose interests lie primarily in computers and computational mathematics.

Prerequisites to the Major

Students desiring to major in mathematics are required to have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 215</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 228</td>
<td>Diff Eqns with Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>


dearborn discovery core requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

A total of at least 33 credit hours of coursework must be elected in Mathematics (MATH) and cognate areas at the upper level (300-400 level courses). Students are required to elect 27 hours of coursework in mathematics (MATH) including:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 300</td>
<td>Math Lang Proof &amp; Struct</td>
<td>3</td>
</tr>
</tbody>
</table>
Courses chosen in accordance with one of the following options: 12

Algebra Option or Analysis Option:

**Algebra Option:**
- MATH 412  First Course in Modern Algebra
- MATH 413  Linear Algebra
- MATH 451  Advanced Calculus I

Select at least one of the following:
- MATH 452  Advanced Calculus II
- MATH 492  Introduction to Topology
- MATH 455  Func of a Complex Var with App

**Analysis Option:**
- MATH 412  First Course in Modern Algebra
- MATH 451  Advanced Calculus I
- MATH 452  Advanced Calculus II
  or MATH 492  Introduction to Topology

Select at least one of the following:
- MATH 331  Survey of Geometry
- MATH 395  Elementary Number Theory
- MATH 413  Linear Algebra
- MATH 455  Func of a Complex Var with App

**Applied Courses**
Select at least two applied mathematics courses (CADM): 6
- MATH 315  Applied Combinatorics
- MATH 325  Probability
- MATH 372  Computing with Mathematica
- MATH 404  Dynamical Systems
- MATH 420  Stochastic Processes
- MATH 425  Mathematical Statistics
- MATH 454  Fourier and Boundary
- MATH 455  Func of a Complex Var with App
- MATH 458  Introduction to Wavelets
- MATH 462  Mathematical Modeling
- MATH 472  Intro to Numerical Analysis
- MATH 473  Matrix Computation
- MATH 523  Linear Algebra w/Applications (Program Adviser approval required)

**Math Electives**
Any two other MATH courses numbered 300 through 499 approved for Mathematics majors.

Select 6 credits upper level (300/400 and 3000/4000) from the following:

- CCM
- CHEM (including CHEM 225 and CHEM 226) 1
- CIS (including CIS 200 and CIS 290) 1
- ECON 305  Economic Statistics
- ECON 4015  Introduction to Econometrics
- IMSE (except IMSE 334)
- ME
- PHIL 350  Symbolic Logic
- PHIL 485  Philosophy of Science
- PHYS

**STAT (Only one of STAT 301, STAT 325 can be used to satisfy this requirement)**

**Total Credit Hours** 33

1. Courses joined with “and” count together as one course.

**Notes:**

1. Students who wish to use graduate-level courses, numbered 500 or higher, as part of the 27 credit hours of upper-level MATH coursework required for the major, must submit a Petition to obtain the approval of the faculty Program Advisor in Mathematics.

2. Students seeking secondary teacher certification must take MATH 331, MATH 486, EDD 450 and EDD 451. Also, MATH 395 and a course in statistics (STAT) are recommended for such students. None of the following MATH courses may be used to fulfill any requirements of either a Mathematics major or a Mathematics minor:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 385</td>
<td>Math forElem Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 386</td>
<td>Math forElem Teachers II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 387</td>
<td>Math for Elem Teachers III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 442</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 443</td>
<td>Algebra for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 444</td>
<td>Data Anlys,Prob&amp;Stat for Tchrs</td>
<td>3</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Number &amp; Prop'l Rsng for Tchrs</td>
<td>3</td>
</tr>
<tr>
<td>MATH 446</td>
<td>Discrete Math/Modeling for Tch</td>
<td>3</td>
</tr>
<tr>
<td>MATH 447</td>
<td>Micro in Math for Teachers</td>
<td>2</td>
</tr>
<tr>
<td>MATH 449</td>
<td>Concepts of Calc for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 486</td>
<td>Sec School Math for Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Applied Statistics courses (STAT) cannot be used to fulfill the Math major or minor/concentration requirements.

4. At least 12 of the 27 upper level credit hours in mathematics (MATH) must be elected at UM-Dearborn in order to graduate.

5. In order to enroll in a mathematics class, a student must have earned a grade of at least C- in all prerequisite mathematics courses; a grade below C- signals that the student should immediately repeat the class in order to build a stronger foundation for subsequent study. The same principle applies when a mathematics course is a prerequisite for courses of other disciplines.

**Credit by Examination**

The department grants credit for Calculus I to those students who have received a score of three, four, or five on the AB Exam or a score of three on the BC Exam of the Advanced Placement Program Tests of the College Entrance Examination Board. Credit is granted for both Calculus I and Calculus II to those students who have received a score of four or five on the BC Exam of the Advanced Placement Program Tests. In each case, the student is then eligible to elect the next calculus course in the calculus sequence.

**Minor or LIBS Concentration**

A minor or concentration consists of 12 credit hours in mathematics (MATH) courses approved for upper-level credit in the mathematics major.
Medieval and Renaissance Studies

Medieval and Renaissance Studies is cross-cultural in design and covers the time-period from Late Antiquity (ca. 400) to the seventeenth century. Through the interdisciplinary study of history, art, religion, language and literature, students will develop an integrated understanding of medieval and early modern civilization. Its legacy, along with its intellectual and social diversity, enhances our understanding not only of the past but of present society.

Minor or LIBS Concentration Only

The minor/concentration in Medieval and Renaissance Studies consists of 15 credit hours from the courses (CABR) listed below. Students must include courses from three disciplines.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH</td>
<td>Art History</td>
<td></td>
</tr>
<tr>
<td>ARTH 331</td>
<td>Early Christian Byzantine Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 332</td>
<td>Early Medieval and Romanesque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 333</td>
<td>Gothic Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 334</td>
<td>The 14th Century</td>
<td></td>
</tr>
<tr>
<td>ARTH 335</td>
<td>Women in Medieval Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 341</td>
<td>Art &amp; Architecture in Early Ren Florence</td>
<td></td>
</tr>
<tr>
<td>ARTH 342</td>
<td>High Renaissance and Mannerism</td>
<td></td>
</tr>
<tr>
<td>ARTH 343</td>
<td>Northern Renaissance Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 344</td>
<td>Italian Renaissance Sculpture</td>
<td></td>
</tr>
<tr>
<td>ARTH 351</td>
<td>Southern Baroque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 352</td>
<td>Northern Baroque Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 454</td>
<td>Rembrandt</td>
<td></td>
</tr>
<tr>
<td>COML</td>
<td>Comparative Literature</td>
<td></td>
</tr>
<tr>
<td>COML 433</td>
<td>Writing Women in Renaissance</td>
<td></td>
</tr>
<tr>
<td>ENGL</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>ENGL 371</td>
<td>Eng Lit from Begin-1500</td>
<td></td>
</tr>
<tr>
<td>ENGL 372</td>
<td>Eng Lit: 1500 to 1600</td>
<td></td>
</tr>
<tr>
<td>ENGL 373</td>
<td>English Lit 1600-1660</td>
<td></td>
</tr>
<tr>
<td>ENGL 400</td>
<td>Maj Eng Lit of the Mid Ages</td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>Lit of Anglo-Saxon England</td>
<td></td>
</tr>
<tr>
<td>ENGL 405</td>
<td>Chaucer</td>
<td></td>
</tr>
<tr>
<td>ENGL 406</td>
<td>Studies in Medieval Lit/Culture</td>
<td></td>
</tr>
<tr>
<td>ENGL 408</td>
<td>Shakespeare I: Earlier Works</td>
<td></td>
</tr>
<tr>
<td>ENGL 409</td>
<td>Shakespeare II: Later Works</td>
<td></td>
</tr>
<tr>
<td>ENGL 410</td>
<td>Maj Eng Lit of the Renais</td>
<td></td>
</tr>
<tr>
<td>ENGL 412</td>
<td>Milton</td>
<td></td>
</tr>
<tr>
<td>ENGL 413</td>
<td>Shakespeare’s Contemporaries</td>
<td></td>
</tr>
<tr>
<td>ENGL 414</td>
<td>Seventeenth-Century Readings</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>History</td>
<td></td>
</tr>
<tr>
<td>HIST 314</td>
<td>England: Tudors and Stuarts</td>
<td></td>
</tr>
<tr>
<td>HIST 329</td>
<td>Medieval Society</td>
<td></td>
</tr>
<tr>
<td>HIST 330</td>
<td>The Renaissance</td>
<td></td>
</tr>
<tr>
<td>HIST 331</td>
<td>The Reformation Era: 1500-1648</td>
<td></td>
</tr>
<tr>
<td>HIST 4312</td>
<td>European Encounters, 1400-1800</td>
<td></td>
</tr>
<tr>
<td>PHIL</td>
<td>Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 307</td>
<td>Medieval Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

Microbiology

The field of microbiology encompasses the study of a wide diversity of micro-organisms, including viruses, bacteria, archaea bacteria, algae, fungi and protozoa. Microbiologists seek to understand the interactions between these organisms and components of our biosphere. The program in microbiology is designed to prepare students for laboratory positions in industry, government, and university research. The program also provides a foundation for graduate work in microbiology, virology, molecular biology, medicine and other areas. Certification is possible by special examination upon graduation.

Prerequisites to the Major

A solid background in mathematics is essential to success in any of the scientific disciplines. Incoming students who intend to choose a major in Microbiology should have completed at least three years of high school mathematics. First year students should plan to enroll in MATH 104 or MATH 105, MATH 113 or MATH 115, or MATH 114 or MATH 116 based on the results of their math placement tests. CHEM 134 or CHEM 144 and CHEM 136 or CHEM 146 are prerequisites to many other courses in the Natural Sciences Department; students majoring in any of the sciences should complete this sequence as soon as possible.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.
**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**

Complete a two-semester beginning language sequence.

- **Language**
  - Courses
  - Ancient Greek I and II: MCL 105 and MCL 106
  - Arabic I and II: ARBC 101 and ARBC 102
  - Armenian I and II: MCL 111 and MCL 112
  - French I and II: FREN 101 and FREN 102
  - German I and II: GER 101 and GER 102
  - Latin I and II: LAT 101 and LAT 102
  - Spanish I and II: SPAN 101 and SPAN 102

**Major Requirements**

A minimum of 29 upper level credit hours in Microbiology (MICR) or Biological Sciences (BIOL) must be completed as outlined below.

*Note: Students should begin the chemistry sequence before electing any MICR/BIOL course.*

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AREA A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MICR 385</td>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>MICR 406</td>
<td>Microbial Genetics</td>
<td>3</td>
</tr>
<tr>
<td>MICR 440</td>
<td>Micro Genetics &amp; Physi Lab</td>
<td>1</td>
</tr>
<tr>
<td>MICR 485</td>
<td>Physiology of Microorganisms</td>
<td>3</td>
</tr>
<tr>
<td>Select at least one credit hour from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MICR 495</td>
<td>Off-Campus Research</td>
<td>1</td>
</tr>
<tr>
<td>MICR 497</td>
<td>Seminar in Microbiology</td>
<td></td>
</tr>
<tr>
<td>MICR 498</td>
<td>Ind Study in Microbiology</td>
<td></td>
</tr>
<tr>
<td>MICR 499</td>
<td>Lab in Micro Research</td>
<td></td>
</tr>
</tbody>
</table>

**AREA B**

An organismal/environmental course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICR 405</td>
<td>Applied &amp; Environ Microbiology</td>
<td>4</td>
</tr>
</tbody>
</table>

**AREA C**

Complete an additional 13 credit hours (to reach minimum 29 hours required for the major) from the following list, of which at least four credit hours must be from microbiology courses (MICR).

- **Microbiology (MICR) Courses** - A minimum of 4 credit hours from:
  - MICR 380 | Epidemiology                              | 4
  - MICR 390 | Topics in Microbiology                    | 3
  - MICR 430 | Medical Virology                          |              |
  - MICR 450 | Virology                                   |              |
  - MICR 455 | Immunology                                 |              |
  - MICR 459 | Pathogenic Microbiology                    |              |
  - MICR 495 | Off-Campus Research                       |              |
  - MICR 497 | Seminar in Microbiology                    |              |
  - MICR 498 | Ind Study in Microbiology                  |              |
  - MICR 499 | Lab in Micro Research                      |              |

Select a minimum of 9 credits from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 301</td>
<td>Cell Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 306</td>
<td>General Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Histology</td>
<td></td>
</tr>
<tr>
<td>BIOL 370</td>
<td>Principles of Biochemistry</td>
<td></td>
</tr>
<tr>
<td>BIOL 390</td>
<td>Topics in Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 470</td>
<td>Biochemistry I</td>
<td></td>
</tr>
<tr>
<td>BIOL 471</td>
<td>Biochemistry II</td>
<td></td>
</tr>
<tr>
<td>BIOL 472</td>
<td>Biochemistry Lab I</td>
<td></td>
</tr>
<tr>
<td>BIOL 473</td>
<td>Biochemistry Laboratory II</td>
<td></td>
</tr>
<tr>
<td>BIOL 474</td>
<td>Molecular Biology</td>
<td></td>
</tr>
</tbody>
</table>

**Cognates**

A minimum of six credit hours upper level courses from the following:

- Any upper level courses in BCHM, CHEM, ENST, ESCI, GEOL, PHYS
- MATH 325 | Probability                               |              |
- STAT 301 | Biostatistics I                           | 4            |
- STAT 326 | Applied Statistics II                     |              |
- STAT 330 | Intro to Survey Sampling                  |              |
- PHIL 442 | Medical Ethics                            |              |
- PHIL 485 | Philosophy of Science                     |              |
- ANTH 430 | Medical Anthropology                      |              |
- ANTH 435 | Human Genetics                            |              |
- PSYC 370 | Physiological Psychology                  |              |
- SOC 440  | Medical Sociology                         |              |

**Total Credit Hours**

35

Other appropriate cognate courses may be permitted with approval of Program Advisor by Petition.

1. No more than a total of six credit hours combined in MICR 495, MICR 498, and MICR 499 may be applied toward the 120 credit hours required for graduation. Both MICR 498 and MICR 499 require independent study contracts agreed upon by a faculty member.

2. All 400-level MICR courses have MICR 385 as a prerequisite.

3. When topic is appropriate – must Petition.
STAT 301 may be used as a prerequisite requirement or as a cognate requirement but not both.

Notes:
1. A maximum of 44 credit hours of MICR or BIOL may count in the 120 hours required for graduation.
2. A maximum of 36 credit hours from Areas A, B, and C may count toward the 120 hours required for graduation.
3. At least 12 of the 29 credit hours of upper level MICR/BIOL used toward the major must be elected at UM-Dearborn.
4. A maximum of 6 credit hours of Independent Study (courses numbered 495, 498, 499) in any science discipline may count in the 120 hours to graduate.
5. A maximum of 6 credit hours combined in MICR 495/BIOL 495, MICR 498/BIOL 498, MICR 499/BIOL 499 may be applied toward the 29 credit hours required in the major.
6. In the entire minimum 35 credit hours required for both the microbiology major and cognates, students may use either BIOL/BCHM/ CHEM 370 or BIOL/BCHM/CHEM 470 and/or 471.

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level courses in microbiology (MICR).

Middle East Studies

The Middle East Studies Certificate (MEST) is a credential for students who have studied the history and culture of the Middle East from a variety of disciplinary perspectives. Requiring a minimum of 12 upper level credits after the completion of prerequisites, the MEST Certificate can complement your major or stand alone as a post baccalaureate credential.

Required Pre-requisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>or HIST 102</td>
<td>Medieval and Renaissance World</td>
<td></td>
</tr>
<tr>
<td>or HIST 103</td>
<td>The World Since 1500 CE</td>
<td></td>
</tr>
<tr>
<td>COMP 106</td>
<td>Writing &amp; Rhetoric II</td>
<td>3</td>
</tr>
</tbody>
</table>

A minimum of 12 credits required from the following:

Group A: Regional and Thematic History- 9 credits from

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 337</td>
<td>Islamic Movemnts Mid East Hist</td>
<td></td>
</tr>
<tr>
<td>HIST 338</td>
<td>Women&amp;Islam Mid East to 1900</td>
<td></td>
</tr>
<tr>
<td>HIST 339</td>
<td>Ottoman Empire in 19th Century</td>
<td></td>
</tr>
<tr>
<td>HIST 3130</td>
<td>Armena Ancient Medieval World</td>
<td></td>
</tr>
<tr>
<td>HIST 3132</td>
<td>Armenians in the Modern World</td>
<td></td>
</tr>
<tr>
<td>HIST 3502</td>
<td>The Middle East 570 to 1800 CE</td>
<td></td>
</tr>
<tr>
<td>HIST 3511</td>
<td>Modern Middle East, 1918-1945</td>
<td></td>
</tr>
<tr>
<td>HIST 3512</td>
<td>Modern Middle East, 1945-1991</td>
<td></td>
</tr>
</tbody>
</table>

NOTES REGARDING MIDDLE EAST STUDIES CERTIFICATE PROGRAM:

1. Application to the MEST Certificate Program requires the following: Completion of all pre-requisite courses and ONE course from Group A or B (with a grade of B or better in the Group A or B course).
2. Students may replace one course in Group A with a Group B course.
3. A minimum 3.0 GPA in the courses counting in the MEST Certificate is required at the time of graduation and/or posting of the certificate.
4. At least 6 of the 12 credits for the certificate must be completed at UM-Dearborn.
5. All courses must be taken as standard grade mode (no pass/fail mode allowed), with the exception of a maximum of 3 credits of internship/co-op (approved by Petition).
6. A maximum of 3 credit of internship or co-op may satisfy a Group B requirement by Petition.
7. A maximum of 3 credits may share with major, minor, other certificate program.
8. Students may Petition the MEST Chair for use of upper level research based independent study credit.
9. Students with upper level credit in any of the following Middle Eastern languages (with a grade of B or higher) from another institution may Petition to apply that credit to satisfy the Group B requirement: Berber, Persian, Kurdish, Hebrew, Urdu, Dari, Pashto, Baluch, Armenian, Azeri Turkish, Turkish, Uzbek, and Tajik. This is not an exhaustive list. Research languages such as French or German may also be considered if the Petition demonstrates applicability to student’s program study of the Middle East.

Post-baccalaureate students may apply directly through the standard undergraduate non-degree admissions procedure, meeting the following stipulations:
Modern and Classical Languages

Armenian
(not a field of concentration)

Course offerings in Armenian are located under the heading "Modern and Classical Languages (MCL)."

Greek
(not a field of concentration)

Course offerings in Greek are located under the heading "Modern and Classical Languages (MCL)."

Swedish
(not a field of concentration)

Course offerings in Swedish are located under the heading "Modern and Classical Languages (MCL)."

Students must be in the Swedish exchange program with Jonkoping University in the College of Engineering and Computer Science.

Music

Minor or LIBS Concentration only

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>select</td>
<td>12 credit hours of upper-level course work in music history(MHIS), music theory (MTHY)</td>
<td>12</td>
</tr>
</tbody>
</table>

Total Credit Hours 18

It is strongly advised that all students pursuing a minor in music take at least one semester of applied music (MAPP 125 Class Piano or MAPP 135 Class Guitar), in addition to the required course work; or that they join one of the musical ensembles active on campus such as Jazz Ensemble, African Drum and Dance Society, or the Gospel Choir for at least one calendar year.

Music Theory

(not a field of concentration)

Natural Sciences

(not a field of concentration)

Students without extensive background in science who wish to receive a general introduction to the natural sciences should elect NSCI 120 and/or NSCI 121. NSCI 120 and NSCI 121 count toward Dearborn Discovery Core (DDC) requirements.

Organizational Change in a Global Environment

Minor or LIBS Concentration only

Requires 15 credits of upper level course work from the following (CAOG):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td>15</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Aspects of the Holocaust</td>
<td></td>
</tr>
<tr>
<td>HIST 3695</td>
<td>American City</td>
<td></td>
</tr>
<tr>
<td>JASS 403</td>
<td>Issues in Cyberspace</td>
<td></td>
</tr>
<tr>
<td>LIBS 364</td>
<td>The European Union</td>
<td></td>
</tr>
<tr>
<td>PSYC 405</td>
<td>Gender Roles</td>
<td></td>
</tr>
<tr>
<td>PSYC 431</td>
<td>Organizational Entry</td>
<td></td>
</tr>
<tr>
<td>PSYC 4305</td>
<td>Psychology in the Workplace</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 15

Philosophy

Philosophy explores the fundamental values and assumptions of human activities such as science, the arts, religion, morality, and social and political institutions. It uses the power of human reasoning to address such questions as "What is it to know something?" "What is the best way to live?" and "Is belief in God rationally justifiable?" Ultimately, philosophy has as its goal the development of a coherent view of the world and our place in it.

Philosophical inquiry helps students acquire and sharpen valuable intellectual and practical skills that can be important in their careers. These skills include effective writing, verbal argumentation, and critical thinking.

The primary value of philosophy lies in its contribution to intellectual insight and to a liberal arts education. The study of philosophy can also serve as a basis for a variety of careers, including medicine, business, and government. It is especially effective as the basis for a pre-law program. Recent developments in cognitive science and in medical and environmental ethics have broadened the range of careers and professions for which the study of philosophy can be recommended.
Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 100</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>PHIL 234 Symbolic Logic</td>
<td></td>
</tr>
<tr>
<td>PHIL 240</td>
<td>Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 9

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 301</td>
<td>Ancient Philosophy</td>
<td></td>
</tr>
<tr>
<td>&amp; PHIL 302</td>
<td>and Modern Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

Alternative I or II

A student may choose either a traditional major in philosophy (Alternative I) or a program that stresses the relationship of philosophy to other areas of study (Alternative II).

Cognates (CALC)

As noted above, cognate requirements depend on the student’s choosing between Alternative I and Alternative II. Approved list of cognate courses can be obtained on Degree Works.

With regard to both Alternatives, students are strongly encouraged to work closely with a philosophy faculty adviser to develop a coherent program. Alternative I requires a total of 24 credit hours in philosophy (PHIL) courses at the upper level (300 or 400 level) and six upper-level hours from an approved list of cognate courses in one or more disciplines outside philosophy. Alternative II requires a total of 18 credit hours in philosophy courses at the 300 or 400 level and 12 credit hours upper-level of cognate courses from the approved list. Satisfactory completion of PHIL 301 Ancient Philosophy and PHIL 302 Modern Philosophy will be counted as part of the 24 hours in philosophy in Alternative I or as part of the 18 hours in philosophy in Alternative II.

Notes:

1. A maximum of 44 credit hours in PHIL may count in the 120 hours required to graduate.
2. Credit cannot be given for both PHIL 234 and PHIL 350.
3. At least 15 credit hours of upper level Philosophy (PHIL) required for the major must be elected at UM-Dearborn.

Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level courses in philosophy (PHIL).

Physics

Physics is the study of the most fundamental properties of matter and energy.

The physics program has been designed with the recognition that a student might choose to concentrate in physics for a variety of reasons. In addition to meeting the needs of those planning to continue their physics education in graduate school, the program serves students planning to pursue technical careers immediately after graduation, those seeking to enter medical, dental or other professional schools, and those planning to earn certification as high school teachers.

After completing a core curriculum in physics and mathematics and an introduction to the life and other physical sciences, students have the opportunity to gain first-hand experience in basic and applied physics research. Most advanced students are able to participate in the research projects of faculty members during any of three University terms. Similar experiences may be arranged in hospital, industrial or government research facilities in the area.

The physics faculty have concentrated their efforts in atomic physics, condensed matter physics, biophysics and astrophysics. Physics majors have worked in these areas and also on projects in the interdisciplinary application of physics in medicine and the environment.
Prerequisites to the Major

A solid background in mathematics is essential to success in any scientific discipline. Incoming students who intend to major in physics should have completed at least three years of high school mathematics. First-year students should plan to enroll in MATH 105, MATH 115 or MATH 116 based on the results of their math placement tests. PHYS 150 and PHYS 151 are prerequisites to all other physics courses. Students should complete these courses as soon as possible.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Gen Chemistry IB</td>
<td></td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>12</td>
</tr>
<tr>
<td>&amp; MATH 116</td>
<td>and Calculus II</td>
<td></td>
</tr>
<tr>
<td>&amp; MATH 215</td>
<td>and Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 228</td>
<td>Diff Eqns with Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Select two additional science courses from the following:</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td></td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>General Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td></td>
</tr>
<tr>
<td>or BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td></td>
</tr>
<tr>
<td>GEO1 118</td>
<td>Physical Geology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 38-39

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 305</td>
<td>Contemporary Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 360</td>
<td>Instrumentation for Scientists</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 403</td>
<td>Electricity and Magnetism</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 406</td>
<td>Thermal and Statistical Physic</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 453</td>
<td>Quantum Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 460</td>
<td>Advanced Physics Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Select six additional credit hours of lecture courses in astronomy and/or physics, chosen from (only one course can be astronomy (ASTR)):</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ASTR 301</td>
<td>Astrophysical Concepts</td>
<td></td>
</tr>
<tr>
<td>ASTR 330</td>
<td>The Cosmic Distance Scale</td>
<td></td>
</tr>
<tr>
<td>ASTR 361</td>
<td>Observational Techniques</td>
<td></td>
</tr>
<tr>
<td>ASTR 390</td>
<td>Topics in Astronomy</td>
<td></td>
</tr>
<tr>
<td>ASTR/PHYS 421</td>
<td>Stellar Astrophysics</td>
<td></td>
</tr>
<tr>
<td>ASTR 445</td>
<td>Galaxies and Cosmology</td>
<td></td>
</tr>
<tr>
<td>PHYS 314</td>
<td>Computational Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 320</td>
<td>Environmental Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 370</td>
<td>Intro to Mathematical Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 390</td>
<td>Current Topics in Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 405</td>
<td>Optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 416</td>
<td>Biological Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 457</td>
<td>Atomic and Nuclear Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 463</td>
<td>Solid State Physics</td>
<td></td>
</tr>
<tr>
<td>Select three additional credit hours of laboratory/research courses, selected from:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHYS 460</td>
<td>Advanced Physics Laboratory (may be repeated for credit)</td>
<td></td>
</tr>
<tr>
<td>PHYS 495</td>
<td>Off-Campus Research</td>
<td></td>
</tr>
<tr>
<td>PHYS 499</td>
<td>Laboratory Studies in Physics</td>
<td></td>
</tr>
</tbody>
</table>

Cognates
Students must complete at least six additional credit hours in upper-level cognate courses selected from: ASTR, BIOL, BCHM, CHEM, ESCI, ENST, GEOL, MICR, NSCI, MATH (excluding 385, 386, 387), STAT, BENG, CIS, ECE, ENGR, IMSE, ME or other subject areas intimately related to physics and approved by the physics faculty advisor by Petition. ¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3-4</td>
</tr>
</tbody>
</table>

1. Courses leading to knowledge of computer programming in languages such as Fortran, C++, or JAVA are particularly recommended.

Notes:

1. A maximum of 44 credit hours of PHYS may count in the 120 hours required to graduate.
2. At least 12 of the 31 upper level credit hours in PHYS must be elected at UM-Dearborn.
3. A maximum of 6 credit hours of independent study/research in any Dept. of Natural Sciences discipline may count towards the 120 credit hours required to graduate.

Minor or LIBS Concentration
A minor or concentration consists of 12 credit hours of upper-level courses in physics (PHYS).

Political Science
Political Science, broadly defined, is the study of political power and the ends to which that power is used. It is “political” in the sense that it concentrates on the institutions and processes of political systems that exercise power in an authoritative way. It is “scientific” in the sense that there is a systematic body of knowledge about political behavior which can be studied empirically, normatively, and experientially. But in a broader sense, political science also studies the larger issues of justice and the ways in which the use of political power advances or retards the achievement of justice.

Politics deals with “who gets what,” and political science is the study of that process of getting and maintaining power. It is an attempt to define and analyze the processes by which individuals define their interests and interact to promote those interests. At the same time it is the study of the moral ends to which power is used. The six officially defined areas of specialty within the political science major are: American Politics, Political Theory, Public Policy, Comparative Politics, International Relations, and Research Methodology.

Political science prepares students for possible careers in public administration; federal, state, and local elected office; public policy analysis; lobbying, journalism, political consulting, law, and graduate work leading to teaching, research, or administration at the university level.

Prerequisites to the Major
Students majoring in political science must take two Prerequisites:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ POL 101 is highly recommended for all upper-level courses. Junior or senior standing is a prerequisite for most 400/4000-level courses. Students are advised to complete POL 101 and POL 201 within their first four terms and POL 300 during their fourth or fifth term.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements
Students must complete 30 credit hours of upper-level political science (POL) courses. Students are advised to complete required classes as soon as possible to prevent schedule conflicts. Those who ignore this advice may have difficulties completing their major requirements as they planned.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 350</td>
<td>Pol of the Developing Areas</td>
<td></td>
</tr>
<tr>
<td>POL 355</td>
<td>Religion and Politics</td>
<td></td>
</tr>
<tr>
<td>POL 370</td>
<td>Communist &amp; Post-Communist Sys</td>
<td></td>
</tr>
<tr>
<td>POL 385</td>
<td>Middle East Politics</td>
<td></td>
</tr>
<tr>
<td>POL 450</td>
<td>Revolution</td>
<td></td>
</tr>
<tr>
<td>POL 361</td>
<td>American Foreign Policy</td>
<td></td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td></td>
</tr>
<tr>
<td>POL 375</td>
<td>Great Pwrs Comp and Conflict</td>
<td></td>
</tr>
<tr>
<td>POL 451</td>
<td>Peace and War</td>
<td></td>
</tr>
<tr>
<td>POL 471</td>
<td>American Foreign Policy I</td>
<td></td>
</tr>
<tr>
<td>POL 472</td>
<td>American Foreign Policy II</td>
<td></td>
</tr>
<tr>
<td>POL 473</td>
<td>International Security Affairs</td>
<td></td>
</tr>
<tr>
<td>POL 300</td>
<td>Political Analysis</td>
<td></td>
</tr>
<tr>
<td>POL 4910</td>
<td>Capstone in Political Science</td>
<td></td>
</tr>
<tr>
<td>POL 302</td>
<td>The Theory of the Law</td>
<td></td>
</tr>
<tr>
<td>POL 316</td>
<td>The American Judicial Process</td>
<td></td>
</tr>
<tr>
<td>POL 318</td>
<td>Criminal Law</td>
<td></td>
</tr>
<tr>
<td>POL 413</td>
<td>American Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>POL 414</td>
<td>Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>POL 415</td>
<td>Problems in Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>POL 417</td>
<td>Constitution&amp;National Security</td>
<td></td>
</tr>
<tr>
<td>POL 484</td>
<td>Revitalizing Cities</td>
<td></td>
</tr>
<tr>
<td>POL 489</td>
<td>Seminar in Urban Politics</td>
<td></td>
</tr>
<tr>
<td>POL 4165</td>
<td>Criminal Law</td>
<td></td>
</tr>
<tr>
<td>POL 304</td>
<td>American Political Thought</td>
<td></td>
</tr>
<tr>
<td>POL 305</td>
<td>Race/Justice/Freedom in Amer</td>
<td></td>
</tr>
<tr>
<td>POL 307</td>
<td>Marxist Thought</td>
<td></td>
</tr>
<tr>
<td>POL 308</td>
<td>Moral and Political Dilemmas</td>
<td></td>
</tr>
<tr>
<td>POL 309</td>
<td>Ancient Political Theory</td>
<td></td>
</tr>
<tr>
<td>POL 310</td>
<td>Modern Political Theory</td>
<td></td>
</tr>
<tr>
<td>POL 314</td>
<td>Issues in Amer Pol Thought</td>
<td></td>
</tr>
<tr>
<td>POL 325</td>
<td>Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>POL 333</td>
<td>Citizens and Bureaucrats</td>
<td></td>
</tr>
<tr>
<td>POL 360</td>
<td>American Policy Process</td>
<td></td>
</tr>
<tr>
<td>POL 364</td>
<td>Health Pol and Administration</td>
<td></td>
</tr>
<tr>
<td>POL 365</td>
<td>Energy Policy</td>
<td></td>
</tr>
<tr>
<td>POL 367</td>
<td>Fiscal Policy and Budgeting</td>
<td></td>
</tr>
<tr>
<td>POL 466</td>
<td>Politics&amp;Policies Soc Welfare</td>
<td></td>
</tr>
<tr>
<td>POL 467</td>
<td>Food Politics and Policy</td>
<td></td>
</tr>
<tr>
<td>POL 481</td>
<td>Terrorism &amp; US Natl Security</td>
<td></td>
</tr>
<tr>
<td>POL 484</td>
<td>Revitalizing Cities</td>
<td></td>
</tr>
<tr>
<td>POL 487</td>
<td>Comparative Enviro Policy</td>
<td></td>
</tr>
<tr>
<td>POL 490</td>
<td>Sem in Public Administration</td>
<td></td>
</tr>
<tr>
<td>POL 341</td>
<td>Canadian Politics</td>
<td></td>
</tr>
<tr>
<td>POL 302</td>
<td>The Theory of the Law</td>
<td></td>
</tr>
<tr>
<td>POL 316</td>
<td>The American Judicial Process</td>
<td></td>
</tr>
<tr>
<td>POL 318</td>
<td>Criminal Law</td>
<td></td>
</tr>
<tr>
<td>POL 413</td>
<td>American Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>POL 414</td>
<td>Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>POL 415</td>
<td>Problems in Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>POL 417</td>
<td>Constitution&amp;National Security</td>
<td></td>
</tr>
<tr>
<td>POL 418</td>
<td>Supreme Court and Religion</td>
<td></td>
</tr>
<tr>
<td>POL 302</td>
<td>The Theory of the Law</td>
<td></td>
</tr>
<tr>
<td>POL 316</td>
<td>The American Judicial Process</td>
<td></td>
</tr>
<tr>
<td>POL 318</td>
<td>Criminal Law</td>
<td></td>
</tr>
<tr>
<td>POL 413</td>
<td>American Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>POL 414</td>
<td>Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>POL 415</td>
<td>Problems in Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>POL 4165</td>
<td>Criminal Law</td>
<td></td>
</tr>
<tr>
<td>POL 417</td>
<td>Constitution&amp;National Security</td>
<td></td>
</tr>
<tr>
<td>POL 418</td>
<td>Supreme Court and Religion</td>
<td></td>
</tr>
<tr>
<td>POL 325</td>
<td>Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>POL 333</td>
<td>Citizens and Bureaucrats</td>
<td></td>
</tr>
<tr>
<td>POL 360</td>
<td>American Policy Process</td>
<td></td>
</tr>
<tr>
<td>POL 361</td>
<td>American Foreign Policy</td>
<td></td>
</tr>
<tr>
<td>POL 362</td>
<td>Women, Politics, and the Law</td>
<td></td>
</tr>
<tr>
<td>POL 364</td>
<td>Health Pol and Administration</td>
<td></td>
</tr>
<tr>
<td>POL 365</td>
<td>Energy Policy</td>
<td></td>
</tr>
<tr>
<td>POL 367</td>
<td>Fiscal Policy and Budgeting</td>
<td></td>
</tr>
</tbody>
</table>
Minor or LIBS Concentration

A minor or concentration consists of 12 credit hours of upper-level courses in political science (POL).

Psychology

As the science of human experience and behavior, psychology has a vast range. At one end, it borders on natural sciences such as biology and physiology, and at the other, it shares interests with social science disciplines such as anthropology and sociology. With the goal of understanding, predicting, and modifying behavior and psychological processes, psychologists must include in their studies a variety of perspectives.

The Psychology Program at UM-Dearborn is designed to accommodate non-majors who seek personal enrichment, majors who will go on to psychology in a human services career or in a related field, and majors intending to pursue an advanced degree in psychology. The Program thus includes courses in the following areas:

- Natural Science (learning and memory, sensation and perception, physiology)
- Cognitive (thinking, problem solving, and language)
- Developmental (the process of human growth)
- Social (the influence of groups)
- Clinical/Abnormal (understanding and treating people with psychological disorders)
- Industrial/Organizational (applying psychological principles to the workplace)

Psychology provides direct training for employment in four major areas. It can be applied to careers:

- promoting individual health (clinical psychology, counseling psychology, community psychology, health psychology)
- in educational settings (school psychology, college teaching)
- in business settings (industrial and organizational psychology, engineering psychology, consumer psychology)
- in the public domain (environmental psychology, law and psychology, psychology and public policy)

Psychology is also an excellent preparation and aid for careers in such fields as medicine, law, business, education, and social work. Honors and internship programs provide opportunity for students to develop research skills and to gain practical experience in an applied setting.

Prerequisites to the Major

Students desiring to major in psychology are required to take the following or their equivalent.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology (upper level PSYC courses require a minimum grade of C- in PSYC 101)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 3

Notes:

1. At least 15 of the 30 upper level credit hours in the Political Science (POL) major must be elected at UM-Dearborn.
2. A maximum of 6 credit hours of POL 494, POL 495, POL 496, POL 497 internship credit may count in the 30 credit hours required for the major.
3. Any one course may be used to satisfy only one requirement within the major.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the
DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

**Major Requirements**

Students must complete at least 30 credit hours in psychology (PSYC) at the upper level (300 level or above). For those transferring from a community college this requirement will mean that the 30 credit hours will be completed during the junior and senior years.

Students are required to take one course in each of the following areas.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 372</td>
<td>Animal Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 455</td>
<td>Health Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 4725</td>
<td>Motivation and Behavior</td>
<td></td>
</tr>
</tbody>
</table>

**Clinical/Personality (CACP)**

Select one course from the following:

| PSYC 440 | Abnormal Psychology           | 3             |
| PSYC 441 | Intro to Clinical Psychology  |               |
| PSYC 442 | Child Psychopathology         |               |
| PSYC 450 | Personality Theory            |               |

**Developmental Psychology (CADP)**

Select one course from the following:

| PSYC 300 | Life-Span Development Psych   | 3             |
| PSYC 301 | Psych of Infant Development   |               |
| PSYC 302 | Psych of Child Development    |               |
| PSYC 315 | Personality Development       |               |
| PSYC 407 | Psychology of Adolescence     |               |
| PSYC 412 | Psychology of Aging           |               |
| PSYC 418 | Cognitive Development         |               |
| PSYC 432 | Socialization of the Child    |               |

**Social/Organizational Psychology (CASP)**

Select one course from the following:

| PSYC 320 | Social Psychology             | 3             |
| PSYC 322 | Psychology of Prejudice       |               |
| PSYC 325 | Pysc of Interpersonal Relation|               |
| PSYC 426 | Applied Social Psychology     |               |
| PSYC 4305 | Psychology in the Workplace  |               |

**Statistics and Experimental Design**

PSYC 381 | Prin of Stat and Exper Design (must be taken before Methods course) | 3             |

**Cognitive (CAPC)**

Select one course from the following:

| PSYC 363 | Cognitive Psychology          | 3             |
| PSYC 375 | Psychology of Language        |               |
| PSYC 461 | Learning and Memory           |               |
| PSYC 463 | Sensation and Perception      |               |
| PSYC 464 | Applied Cognitive Psychology  |               |
| PSYC 474 | Animal Intelligence           |               |

**Electives in Psychology**

Select 9 credits any upper-level psychology (PSYC) to equal 30 total credits:

Total Credit Hours: 30-31

**Cognates**

Students must also complete at least six credit hours in cognate courses at the upper level (300 level or above), (excluding co-ops, internships or independent studies), from: any CASL discipline (excluding psychology); College of Business disciplines; College of Engineering and Computer Science disciplines; College of Education, Health, and Human Services (EDA and EDC disciplines only).

**Notes:**
1. A maximum of 54 credit hours in Psychology (PSYC) may count in the 120 hours required to graduate (excluding PSYC 498 and PSYC 499 for PSYC Honors students).
2. At least 15 of the 30 upper level credit hours in PSYC must be elected at UM-Dearborn.
3. No more than 6 credit hours of Independent Study and no more than 6 credit hours of Independent Research within the Behavioral Sciences (anthropology (ANTH), psychology (PSYC) and sociology (SOC)) may be counted in the 120 credit hours required to graduate.

**Honors Program in Psychology**

Psychology offers an honors program which provides special opportunities for outstanding students, including a research training seminar followed by research in collaboration with faculty members. Students are formally accepted for the honors program early in their junior year. Prospective students should plan on completing PSYC 381 and a Methods course by the end of fall term in their junior year. Requirements for entrance are: a) GPA of 3.2 or higher in psychology and overall UM-Dearborn courses, and b) informal evidence of being a superior student, such as high motivation and ability to work independently. Requirements for graduation with honors in psychology are the successful completion of:

- All requirements for psychology major
- PSYC 481 Computers in Psychology, normally taken in the fall semester, senior year
- PSYC 498 Honors Seminar normally taken winter term, junior year
- PSYC 499 Honors Research normally completed during senior year
- Research proposal meeting completed early in senior year
- Final Oral Defense completed at least one month prior to graduation

**Psychology Internship**

Juniors and seniors can obtain practical experience working under supervision in a setting relevant to psychology. Internship students will spend approximately 6 or 12 hours per week at their field placement and will attend a weekly seminar on campus. Students may register for PSYC 485 Psychology Internship for 3 or 6 credits. Application should be made to the director of the psychology internship program.

**Minor or LIBS Concentration**

A minor or concentration consists of PSYC 101 and 12 credit hours of upper-level courses in psychology (PSYC). Upper level PSYC courses require a minimum grade of C- in PSYC 101.

**Public Relations (PR)**

**The Certificate in Public Relations (PR) offers students practical training in the contemporary skills of public relations.**

For communication majors, it provides an ideal way to complement their broad-based study of communication with the practical skills necessary for entry level work in public relations.

This certificate is also open to all majors across campus, and provides a useful toolkit that will be an excellent complement for any major in liberal arts, business, education, or engineering. The addition of a public relations certificate to these areas highlights the practical skills necessary for a variety of careers in the business, non-profit, or government sector.

By the time students complete the PR certificate they should have met the following program goals:

- Understanding the history and evolution of the public relations field.
- Understanding public relations principles as applicable to a variety of contexts and publics.
- Appreciating the ethical dimensions of public relations practice.
- Writing public relations materials using a variety of traditional and new tools, including social media applications.
- Applying public relations principles in analyzing a variety of situations in multiple cultural contexts.
- Integrating the theory and practice of public relations in multiple contexts.

The Public Relations Certificate requires all of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 260</td>
<td>Public Relations Principles</td>
<td>3</td>
</tr>
<tr>
<td>COMM 300</td>
<td>Communication Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>COMM 360</td>
<td>Social Media for PR</td>
<td>3</td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td>3</td>
</tr>
<tr>
<td>JASS 2015</td>
<td>Fundamentals of Journalism</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>18</td>
</tr>
</tbody>
</table>

**Notes Regarding PR Certificate Program:**

1. A minimum 2.0 GPA and a minimum of twelve earned hours completed at UM-Dearborn are required for admission to the program.
2. A maximum of nine credit hours may simultaneously count toward the PR Certificate and toward the Communication major.
3. A maximum of two transfer courses (six credit hours) may count toward the PR Certificate.
4. A minimum 2.0 GPA in the courses counting toward the PR Certificate and minimum 2.0 cumulative GPA are required at the time of graduation and/or posting of the certificate.

**Religious Studies**

**Minor or LIBS Concentration Only**

It is impossible to understand any cultural context, including Western, without knowledge of the traditions, influence and rationale of its religious underpinnings. In light of this fact, a Religious Studies minor or concentration has been established to provide a focus for discussions of the ethical standards and the cultural orientations that have been fostered by various religions. It is also the objective of this program to provide a background in the religious beliefs, practices, and aesthetics of other cultures in order to give students insight into the basis of social and political actions that otherwise are subject to misunderstanding.

Religious Studies (RELS) is an interdisciplinary course of study which requires one prerequisite course and 15 upper level credit hours of any RELS courses.
Required courses:

- Select one course from each of the three areas.

- Technology Studies and four courses from the list below, with at least one course from the minor in STS.

Science and Technology Studies

**Minor or LIBS Concentration Only**

In a democratic society increasingly reliant on science and technology, it is crucial for citizens to understand the social, political, ethical, economic, and environmental issues at stake in the development, distribution, consumption, and control of the products of science and technology. Science and Technology Studies (STS) is an interdisciplinary program in which the methods and perspectives of various disciplines in the humanities, social sciences, and behavioral sciences are used to examine the social contexts from which science and technology emerge, the intertwined organizations of people and things used to implement scientific and technological systems, the social consequences of these systems, and the cultural reactions to them.

In keeping with UM-Dearborn's location and its historic and continuing connections to the automobile industry, the STS Program gives special attention to the impact of the automobile and the automobile industry on American society. The program's introductory course, for example, analyzes the social as well as the technical reasons for the emergence of the internal combustion engine, the reorganization of factories and reconceptualization of labor fueled by mass production and lean production, the impact of the automobile on the design of cities and the development of suburbs, and the iconic status of the car in American culture. A website on "The Automobile in American Life and Society" (autolife.umd.umich.edu) has been developed by the STS Program and is used in the introductory course.

Most of the courses in STS are cross listed with other disciplines, and the STS faculty hold appointments in such fields as Anthropology, Art History, Biological Sciences, Communications, Economics, English, Environmental Studies, History, Mathematics, Philosophy, Psychology, and Sociology.

A minor in STS is particularly relevant for students who live and work in southeast Michigan and makes an appropriate complement to any field of study in the arts and sciences, engineering, education, or management.

Students who wish to minor or have a concentration for the Liberal Studies major in STS must complete STS 300 Introduction to Science and Technology Studies and four courses from the list below, with at least one course from each of the three areas.

### Required courses:

#### Code | Title | Credit Hours
--- | --- | ---
STS 300 | Intro to Sci & Technol Studies | 3

### Upper Level Credit Hours

Select 15 upper level credit hours of any RELS courses:

- Select five classes (from three disciplines) from the following (CARM) (must include courses from three disciplines):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STS 310</td>
<td>Computers and Society</td>
<td></td>
</tr>
<tr>
<td>STS 326</td>
<td>Gender, Science &amp; Engineering</td>
<td></td>
</tr>
<tr>
<td>STS 340</td>
<td>Race and Evolution</td>
<td></td>
</tr>
<tr>
<td>STS 345</td>
<td>Cultural Ecology &amp; Evolution</td>
<td></td>
</tr>
<tr>
<td>STS 349</td>
<td>Thomas Edison and His Era</td>
<td></td>
</tr>
<tr>
<td>STS 360</td>
<td>Philosophy of Technology</td>
<td></td>
</tr>
<tr>
<td>STS 374</td>
<td>Hist of Industrial Technology</td>
<td></td>
</tr>
<tr>
<td>STS 386</td>
<td>Comparative Hist of Technology</td>
<td></td>
</tr>
<tr>
<td>STS 403</td>
<td>Issues in Cyberspace</td>
<td></td>
</tr>
<tr>
<td>STS 409</td>
<td>Human Body, Growth &amp; Health</td>
<td></td>
</tr>
<tr>
<td>STS 410</td>
<td>Darwinism and Philosophy</td>
<td></td>
</tr>
<tr>
<td>STS 430</td>
<td>Medical Anthropology</td>
<td></td>
</tr>
<tr>
<td>STS 485</td>
<td>Philosophy of Science</td>
<td></td>
</tr>
<tr>
<td>STS 488</td>
<td>Env Lit &amp; Reps of Nature</td>
<td></td>
</tr>
</tbody>
</table>

### Science, Technology and Labor (CABY)

Select one course from the list below:

- Select one additional course from any of the above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STS 305</td>
<td>Social Issues in Auto Design</td>
<td></td>
</tr>
<tr>
<td>STS 310</td>
<td>Computers and Society</td>
<td></td>
</tr>
<tr>
<td>STS 321</td>
<td>Labor in the American Economy</td>
<td></td>
</tr>
<tr>
<td>STS 383</td>
<td>Labor in America</td>
<td></td>
</tr>
<tr>
<td>STS 441</td>
<td>Sociology of the Auto Industry</td>
<td></td>
</tr>
<tr>
<td>STS 442</td>
<td>Sociology of Work</td>
<td></td>
</tr>
<tr>
<td>STS 464</td>
<td>Applied Cognitive Psychology</td>
<td></td>
</tr>
</tbody>
</table>

### Science, Technology and Environments (CABE)

Select one course from the list below:

- Select one additional course from any of the above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STS 301</td>
<td>Concepts of Environmentalism</td>
<td></td>
</tr>
<tr>
<td>STS 305</td>
<td>Social Issues in Auto Design</td>
<td></td>
</tr>
<tr>
<td>STS 308</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>STS 309</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>STS 312</td>
<td>Environmental Ethics</td>
<td></td>
</tr>
<tr>
<td>STS 325</td>
<td>Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>STS 365</td>
<td>Environmental Psychology</td>
<td></td>
</tr>
<tr>
<td>STS 366</td>
<td>Henry Ford and His Place</td>
<td></td>
</tr>
<tr>
<td>STS 3695</td>
<td>The American City</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 15

1. A course that contains some attention to the automobile.

---

### Social Science Research Methodology

**Minor or LIBS Concentration**

Requires 15 credits of upper level course work from the following (CARM) (must include courses from three disciplines):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 370</td>
<td>Indians of North America</td>
<td></td>
</tr>
<tr>
<td>ECON 305</td>
<td>Economic Statistics</td>
<td></td>
</tr>
<tr>
<td>ECON 4015</td>
<td>Introduction to Econometrics</td>
<td></td>
</tr>
<tr>
<td>POL 300</td>
<td>Political Analysis</td>
<td></td>
</tr>
</tbody>
</table>
Social Studies

The Social Studies major provides students with a broad range of courses through which to examine and appreciate the processes and institutions that shape civilizations and social orders. It seeks to recreate the context of changing human activities, be they cultural, economic, geographic, political, or social, and to explain and understand the contemporary human condition. Because of its interdisciplinary structure, the Social Studies major is valuable for those who want a multidimensional understanding of the human past and future, and of the contemporary world and their own place in it.

The degree was especially designed for students seeking to become secondary school teachers, but it could also provide background for those who seek a career in government work, law or business.

Prerequisites to the Major

The Social Studies major requires the student to take two introductory courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111</td>
<td>The American Past I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

Major Requirements

Students must complete 33 credit hours of coursework in Economics, Geography, History, and Political Science from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 307</td>
<td>Early Russian History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 308</td>
<td>Imperial Russia</td>
<td>3</td>
</tr>
<tr>
<td>HIST 309</td>
<td>The Russian Revolutions</td>
<td>3</td>
</tr>
<tr>
<td>HIST 321</td>
<td>Late Imperial China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 322</td>
<td>Traditional China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 323</td>
<td>History of Modern China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 325</td>
<td>Traditional Japan</td>
<td>3</td>
</tr>
<tr>
<td>HIST 326</td>
<td>Modern Japan</td>
<td>3</td>
</tr>
<tr>
<td>HIST 336</td>
<td>The Contmp World, 1945-Present</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours

15

Social and Behavioral Analysis (GESC) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)
HIST 354 The United States and Vietnam
HIST 386 Compar History of Technology
HIST 4690 Borderlands History

Europe (CASE):
HIST 302 Russian Intellectual History
HIST 306 20th-C Russian Intel History
HIST 307 Early Russian History
HIST 308 Imperial Russia
HIST 309 The Russian Revolutions
HIST 3121 Polish History Since 1800
HIST 3122 Poland - Study Abroad
HIST 3130 Armenia Ancient Medieval World
HIST 3131 Armenia in the Soviet Period
HIST 3132 Armenians in the Modern World
HIST 314 England: Tudors and Stuarts
HIST 315 Modern Britain
HIST 329 Medieval Society
HIST 330 The Renaissance
HIST 331 The Reformation Era: 1500-1648
HIST 333 Europe in Age of Rev:1750-1815
HIST 334 Europe in Age of Imp:1815-1914
HIST 335 20th-Century Europe, 1890-1945
HIST 336 The Contmp World, 1945-Present
HIST 3368 Germany Since 1945
HIST 3380 The European City, 1750-2000
HIST 3390 20th c European Women’s Hist
HIST 343 Germany Before Hitler
HIST 362 Eur and Intern’l Econ History
HIST 374 History of Industrial Technly
HIST 378 History of Consciousness
HIST 379 Language, Myth & Dreams
HIST 381 Intelli Hist of Modern Europe
HIST 385 Modern France
HIST 386 Compar History of Technology
HIST 387 Aspects of the Holocaust
HIST 389 Nazi Germany
HIST 4312 European Encounters, 1400-1800
HIST 336 The Contmp World, 1945-Present
Middle East (CASM):
HIST 303 The Birth of Civilization
HIST 341 Hist, Lit, & 20th Century Iran
HIST 3130 Armenia Ancient Medieval World
HIST 3131 Armenia in the Soviet Period
HIST 3132 Armenians in the Modern World
HIST 337 Islamic Movements Mid East Hist
HIST 338 Women&Islam Mid East to 1900
HIST 339 Ottoman Empire in 19th Century
HIST 3502 The Middle East 570 to 1800 CE
HIST 3511 Modern Middle East, 1918-1945
HIST 3512 Modern Middle East, 1945-1991
HIST 3520 Lebanon in Modern Middle East

HIST 362 The US in the Middle East
HIST 3676 Arab Americans Since 1890
HIST 3730 Bible in History
HIST 4505 Feminism & Mod. Mid. East
HIST 4515 Culture & Hist. in Mod. Iran
HIST 4677 Arab American Identities
HIST 4678 Middle Eastern Diasporas

Political Science
Two courses any POL 300/400; 3000/4000 level

Additional Economics, Geography, or Political Science
One course any ECON, GEOG, or POL 300/400; 3000/4000 level

Cognates
Students must also complete six credit hours in upper level cognate courses from any CASL discipline (excluding ECON, GEOG, HIST, POL, MATH 385, MATH 386, MATH 387), or Education courses (EDA and EDC only).

Total Credit Hours 39

For Secondary Education Certification Students
Please see the College of Education, Health, and Human Services secondary certification (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study/undergraduate-degree-programs/secondary-grades-6-12-certification) section for specific courses required.

Notes:
1. At least 15 of the 27 upper level credit hours required for the major must be elected at UM-Dearborn.

Society and Technological Change
Minor or LIBS Concentration only
Requirements 15 credit hours of upper level course work from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 453</td>
<td>Contemporary American Novel</td>
<td>15</td>
</tr>
<tr>
<td>JASS 403</td>
<td>Issues in Cyberspace</td>
<td></td>
</tr>
<tr>
<td>LIBS 364</td>
<td>The European Union</td>
<td></td>
</tr>
<tr>
<td>PSYC 464</td>
<td>Applied Cognitive Psychology</td>
<td></td>
</tr>
<tr>
<td>STS 300</td>
<td>Intro to Sci &amp; Technol Studies</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 15

Sociology
Sociology is the study of society and how it is shaped by individual and collective action.

A “sociological imagination” helps us to see the connections between private troubles, experience individually, and public issues, experienced collectively. It also explains how individual attitudes and behaviors are distributed in patterned and predictable ways according to the position of the individual society’s institutional structure. These institutions include those of economy, government, family, education, and religion.
Sociologists are cross-disciplinary in their research as well as teaching. This means that they are active in related programs on campus, such as Criminology & Criminal Justice Studies, Urban and Regional Studies, Women’s and Gender Studies, African and African-American Studies, Religious Studies, and Law and Society.

The field of sociology has grown in scope and importance as society has grown more complex and pluralistic. The modern individual is involved in a tightly integrated, sometimes conflicting, network of social groups, families, institutions, governmental, economic, educational and religious bodies, and specialized community organizations. Sociology studies the internal structure by which society is organized, the development and dynamics of the various groupings within it and the influences of these upon the individual. The undergraduate program in sociology provides a focus for general liberal education, as well as for preparation for careers in sociology. These include careers in social work and related human services, law, criminal justice, labor relations, public administration, business management, human relations, marketing and public opinion research.

**Internship, Co-op, and Research Opportunities**

Sociology students are provided with supervised field experience in a variety of occupational agencies focusing on social work and/or criminal justice. Students are placed in sites appropriate to their occupational goals. Students may also pursue cooperative educational opportunities, which provide paid career-related work experiences.

The CRJ Internship provides supervised field experience in a variety of occupational agencies focusing on criminal justice. Students are placed in sites appropriate to their occupational goals. Each intern spends a total of 80 hours on site and attends a weekly seminar. Students may elect to take this course for 3-6 credits.

The Sociology faculty encourages students to develop their own research projects in the form of independent studies (SOC 398/498). To find an appropriate faculty member for either one of these courses, students should start by consulting the list of faculty members and their specializations. Often, faculty members are involved in research in which students can take part as data collectors or analysts.

Sociology students frequently present the results of their research at undergraduate research conferences like Meeting of the Minds and the Michigan Undergraduate Research Forum, and even at professional meetings.

**Prerequisites to the Major**

Select one of the following introductory courses:

- SOC 200 Understanding Society 3
- or SOC 201 Contemporary Social Problems

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GSES) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

- Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**

Complete a two-semester beginning language sequence.

**Major Requirements**

A minimum of 28 credit hours of SOC (sociology) courses is required in the major. Students must complete the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 308</td>
<td>Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOC 410</td>
<td>Quantitative Research 1</td>
<td>4</td>
</tr>
<tr>
<td>SOC 413</td>
<td>Qualitative Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- SOC 422 | Structure of American Society
- SOC 423 | American Social Classes
- SOC 435 | Urban Sociology
- SOC 450 | Political Sociology
- SOC 453 | Sociology of Law
- SOC 455 | Sociology of Religion
- SOC 4555 | Immigrant Cultures and Gender
Spanish
(See Hispanic Studies (p. 112))

Speech
(not a field of concentration; see Communication (p. 92))

Statistics
(See Applied Statistics (p. 76))

Swedish
(not a field of concentration; see Modern and Classical Languages
(http://catalog.umd.umich.edu/undergraduate/college-arts-sciences-letters/modern-classical-languages))

Urban and Regional Studies
Urban and Regional Studies (URST) encompasses the environmental, aesthetic, social, economic, geographic, historical, political, and cultural aspects of cities, suburbs and regions. It advances in-depth study of some of the major challenges facing individuals and groups living and working in major metropolitan regions, such as the Detroit area. These challenges include:

- Economic development
- Urban poverty and income inequality
- Preservation and promotion of culture, architecture and art
- Land use conflicts
- Provision of adequate and sustainable transportation and housing services.

The focus of the URST program is to provide you with the knowledge, techniques and critical analytical skills that will enable you to effectively participate in changing your city and region.

The URST program is interdisciplinary by design, meaning that courses draw upon a variety of traditional academic disciplines – e.g. Anthropology, Economics, English, Geography, History and Sociology. Students are encouraged to rigorously and creatively integrate the theory and methods learned in these courses. In addition, a unique feature of the program is that students gain hands-on experience by working in the community through internship, academic service learning and/or community-based research.

Career Opportunities
Urban and Regional Studies provides students with the knowledge, techniques and critical analytical skills that will enable them to effectively participate in changing cities and regions.

Pursuing a degree in Urban and Regional Studies at UM-Dearborn offers you the opportunity to combine real-world practice and theory. Students can specialize in areas such as urban and regional policy, community development, urban design and the environment.

Graduates of this program may consider careers in urban/regional planning, community organizing, non-profit management, public policy/administration, social services, and arts and culture management.

They may also consider pursuing graduate education and research.
in areas such as geography, urban planning, sociology, anthropology, environmental studies, public policy and public administration.

The Major

The program is interdisciplinary by design, meaning that courses draw upon a variety of traditional academic disciplines — e.g. history, English, geography, economics, sociology and anthropology. Students are encouraged to rigorously and creatively integrate the theory and methods learned in these courses. In addition, a unique feature of the program is that students gain hands-on experience by working in the community through an internship, academic service learning and/or community-based research.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

• Lecture/Lab Science Course

• Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Foreign Language Requirement

Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I and II</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>Arabic I and II</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>Armenian I and II</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>French I and II</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>German I and II</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>Latin I and II</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>Spanish I and II</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>URS 300</td>
<td>Urban and Regional Studies</td>
<td>3</td>
</tr>
<tr>
<td>Select 12 credit hours in one of the three concentration tracks (see below for choices)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 12 credit hours from the other two concentration tracks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 6 credit hours of academic-based community research satisfied through any combination of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>URS 485</td>
<td>Urban Regional Stud Internship</td>
<td>1</td>
</tr>
<tr>
<td>or URS 301</td>
<td>SiD–Field Internship</td>
<td>1</td>
</tr>
<tr>
<td>Independent Study 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designated approved 300/400, 3000/4000 level academic service learning (ASL) courses 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>URS 450</td>
<td>Sr Capstone in Community Rsrch</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

1 Students may elect to participate in any CASL Internship program with approval from their URST faculty advisor by Petition and the Internship Program Director.

2 3 credits of which can also be used to satisfy the credit requirements in a single track, with the approval of the URST program faculty director by Petition.

3 For the list of ASL courses for each semester, see Civic Engagement http://umdearborn.edu/asl/.

Concentration Tracks

Must declare one of the following concentration tracks:

Concentration Track I: Urban Problems and Policy (CAUP)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 305</td>
<td>Economic Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 325</td>
<td>Economics of Pov and Discrm</td>
<td>3</td>
</tr>
<tr>
<td>ECON 482</td>
<td>Regional Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 483</td>
<td>Urban Economics</td>
<td>3</td>
</tr>
<tr>
<td>POL 313</td>
<td>American State Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 322</td>
<td>Mich Gov, Pol, &amp; Publ Policy</td>
<td>3</td>
</tr>
<tr>
<td>POL 323</td>
<td>Urban Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL 334</td>
<td>Organizing and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>POL 360</td>
<td>American Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>POL 4605</td>
<td>Science, Tech &amp; Pub Policy</td>
<td>3</td>
</tr>
<tr>
<td>POL 466</td>
<td>Politics&amp;Policies Soc Welfare</td>
<td>3</td>
</tr>
<tr>
<td>POL 467</td>
<td>Food Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>POL 484</td>
<td>Revitalizing Cities</td>
<td>3</td>
</tr>
<tr>
<td>POL 489</td>
<td>Seminar in Urban Politics</td>
<td>3</td>
</tr>
<tr>
<td>SOC 350</td>
<td>Poverty and Inequality</td>
<td>3</td>
</tr>
<tr>
<td>SOC 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>SOC 410</td>
<td>Quantitative Research</td>
<td>3</td>
</tr>
<tr>
<td>SOC 413</td>
<td>Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>SOC 435</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 441</td>
<td>Sociology of the Auto Industry</td>
<td>3</td>
</tr>
</tbody>
</table>
Women’s and Gender Studies

Concentration Track II: Community Development, Culture, History (CAUC)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAS 368</td>
<td>Black Exp in U.S.-1865-Present</td>
<td>3</td>
</tr>
<tr>
<td>AAAS 389</td>
<td>Odyssey of Black Men in Amer</td>
<td>3</td>
</tr>
<tr>
<td>AMST 300</td>
<td>Comparat. American Identities</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 376</td>
<td>Power &amp; Privilege in SE Mich</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 410</td>
<td>Archaeological Field School</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 455</td>
<td>Immigrant Cultures and Gender</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 426</td>
<td>City of Ancient Rome</td>
<td>3</td>
</tr>
<tr>
<td>COML 355</td>
<td>Urban Voices: France and Italy</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 356</td>
<td>Reading Urban Monstrosity</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>U S Economic History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3380</td>
<td>The European City, 1750-2000</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3665</td>
<td>Automobile in American Life</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3695</td>
<td>American City</td>
<td>3</td>
</tr>
<tr>
<td>HIST 383</td>
<td>Labor in America</td>
<td>3</td>
</tr>
<tr>
<td>SOC 304</td>
<td>Studies in Det.Hist. &amp; Culture</td>
<td>3</td>
</tr>
<tr>
<td>SOC 4045</td>
<td>Dissed: Difer, Power, Discrim</td>
<td>3</td>
</tr>
<tr>
<td>SOC 423</td>
<td>American Social Classes</td>
<td>3</td>
</tr>
<tr>
<td>SOC 449</td>
<td>Black Family in Contemp Amer</td>
<td>3</td>
</tr>
<tr>
<td>SOC 458</td>
<td>Sociology of Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration Track III: Environment, Design and Space (CAUE)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 345</td>
<td>Cultural Ecology and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 365</td>
<td>Modern Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 375</td>
<td>Urban Design Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 305</td>
<td>Intro to GIS</td>
<td>4</td>
</tr>
<tr>
<td>ENST 301</td>
<td>Concepts of Environmentalism</td>
<td>3</td>
</tr>
<tr>
<td>ENST 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>ENST 330</td>
<td>Land Use Planning and Mgmt</td>
<td>4</td>
</tr>
<tr>
<td>ENST 340</td>
<td>Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>ENST 456</td>
<td>Ecological Economics</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 310</td>
<td>Economic Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 325</td>
<td>Global Cities</td>
<td>3</td>
</tr>
<tr>
<td>HIST 374</td>
<td>History of Industrial Technlgy</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognates

Six credit hours of upper-level (300/400; 3000/4000 level, excluding internships, co-ops and MATH 385, MATH 386, MATH 387) coursework in a single discipline, in addition to any courses already elected in that discipline used to satisfy urban and regional studies requirements. Cognate courses will provide supporting skills or contexts for the study of urban issues.

Notes:

1. At least 18 of the 36 upper level credit hours required in the major must be elected at UM-Dearborn.
2. In satisfying the academic based community research requirement, students must obtain approval of the URST faculty program advisor for internships, independent study, and “other” approved forms of academic service learning, prior to enrolling in the courses. Courses already designated as academic service learning (ASL, 300/400; 3000/4000 level only) do not require approval. ASL courses vary by semester.

Minor or LIBS Concentration

URST is also available as a minor, or as concentration in the Liberal Studies major. The minor/concentration requires 15 credit hours of upper level coursework including URS 300 and at least one course from each of the three tracks below.

Track I: Urban Problems and Policy: Course attribute CAUP

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| ECON 365, ECON 325, ECON 482, ECON 483, POL 313, POL 322, POL 323, POL 334, POL 360, POL 465, POL 466, POL 467, POL 484, POL 489; SOC 350, SOC 403, SOC 410, SOC 413, SOC 435, SOC 441, SOC 473.

Track II: Community Development, Culture, and History: Course attribute CAUC

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| AAAS 368, AAAS 389, AMST 300, ANTH 376, ANTH 410, ANTH 455; ARTH 426, COML 355, ENGL 356, ECON 361, HIST 3380, HIST 3601, HIST 3665, HIST 3695, HIST 383; SOC 304, SOC 4045, SOC 423, SOC 449, SOC 458.

Track III: Environment, Design, and Space: Course attribute CAUE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| ANTH 345, ARTH 375, ENST 301, ENST 325, ENST 330, ENST 340, ENST 456; ESCI 305, GEOG 300, GEOG 310, GEOG 325; HIST 374.

Women's and Gender Studies

Global women’s poverty, gender-based violence and other forms of discrimination have made gender equity one of the central moral challenges of our century. Women’s and Gender Studies offers an interdisciplinary major and minor designed to provide students with an understanding of gender as a category of analysis that intersects with race, class, sexuality, religion and (dis)ability, and the tools to lead for gender equity and social justice. Faculty who teach in the program are committed to critical thinking, student mentoring, active learning, and the application of theory to practice through social change opportunities on campus, in metropolitan Detroit, and beyond.

Women’s and Gender Studies prepares students for a variety of careers. Our graduates have gone on to work in fields of health, social work, law, politics and government, education, business, science, and the arts. Working closely with an advisor from the program, students devise a course of study tailored to meet their specific needs and interests. Many of our students graduate with a double major with fields such as Psychology, Behavioral Sciences, Communications, Economics, History and Anthropology. For more information see our website at umdearborn.edu/casl/wgst

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education
Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**
Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**
Capstone (GECE) – 3 Credits (p. 22)

**Foreign Language Requirement**
Complete a two-semester beginning language sequence.

<table>
<thead>
<tr>
<th>Language</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Greek I</td>
<td>MCL 105 and MCL 106</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>Arabic I</td>
<td>ARBC 101 and ARBC 102</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>Armenian I</td>
<td>MCL 111 and MCL 112</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>French I</td>
<td>FREN 101 and FREN 102</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>German I</td>
<td>GER 101 and GER 102</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>Latin I</td>
<td>LAT 101 and LAT 102</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
<tr>
<td>Spanish I</td>
<td>SPAN 101 and SPAN 102</td>
</tr>
<tr>
<td>and II</td>
<td></td>
</tr>
</tbody>
</table>

**Major Requirements**
A major requires 30 credit hours in Women’s and Gender Studies (WGST):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGST 303</td>
<td>Intro to Women's &amp; Gender Stud</td>
<td>3</td>
</tr>
<tr>
<td>WGST 409</td>
<td>Feminist Theories</td>
<td>3</td>
</tr>
</tbody>
</table>

**Gender, Culture, and Representation Courses (CAGS)**
Select 6 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGST 315</td>
<td>Body Image and Culture</td>
<td></td>
</tr>
<tr>
<td>WGST 335</td>
<td>Women in Medieval Art</td>
<td></td>
</tr>
<tr>
<td>WGST 337</td>
<td>Women Musicians/West Mus Hist</td>
<td></td>
</tr>
<tr>
<td>WGST 366</td>
<td>Sexualities, Genders, &amp; Bodies</td>
<td></td>
</tr>
<tr>
<td>WGST 385</td>
<td>Language and Gender</td>
<td></td>
</tr>
<tr>
<td>WGST 386</td>
<td>Gender Issues in Literature</td>
<td></td>
</tr>
<tr>
<td>WGST 387</td>
<td>Gender,Sex,Power Screen Studies</td>
<td></td>
</tr>
<tr>
<td>WGST 388</td>
<td>LGBTQ Religious Experience</td>
<td></td>
</tr>
<tr>
<td>WGST 393</td>
<td>Black Women, Rel &amp; Spirituality</td>
<td></td>
</tr>
<tr>
<td>WGST 401</td>
<td>Images of Women in Germany</td>
<td></td>
</tr>
<tr>
<td>WGST 406</td>
<td>Culture and Sexuality</td>
<td></td>
</tr>
<tr>
<td>WGST 407</td>
<td>Sexual Praxis and Theory</td>
<td></td>
</tr>
<tr>
<td>WGST 425</td>
<td>Women in Classical Antiquity</td>
<td></td>
</tr>
<tr>
<td>WGST 433</td>
<td>Writing Women In Renaissance</td>
<td></td>
</tr>
<tr>
<td>WGST 445</td>
<td>20C/21C Women Authors</td>
<td></td>
</tr>
<tr>
<td>WGST 451</td>
<td>Family, Sexuality, Rights</td>
<td></td>
</tr>
<tr>
<td>WGST 455</td>
<td>Gender and Media Studies</td>
<td></td>
</tr>
<tr>
<td>WGST 466</td>
<td>Arguing Feminism: Rhetoric</td>
<td></td>
</tr>
<tr>
<td>WGST 470</td>
<td>Black Women / Lit, Film, Music</td>
<td></td>
</tr>
<tr>
<td>WGST 471</td>
<td>Sexual Subcultures in Lit</td>
<td></td>
</tr>
<tr>
<td>WGST 473</td>
<td>Arab American Women Writers</td>
<td></td>
</tr>
<tr>
<td>WGST 481</td>
<td>Gender and Globalization</td>
<td></td>
</tr>
<tr>
<td>WGST 486</td>
<td>Queer Theory &amp; Literature</td>
<td></td>
</tr>
<tr>
<td>WGST 487</td>
<td>Monsters, Women &amp; the Gothic</td>
<td></td>
</tr>
<tr>
<td>WGST 4505</td>
<td>Feminism &amp; Mod. Mid. East</td>
<td></td>
</tr>
<tr>
<td>WGST 4555</td>
<td>Immigrant Cultures and Gender</td>
<td></td>
</tr>
</tbody>
</table>

**Gender and Social Institutions Courses (CAGI)**
Select 6 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGST 325</td>
<td>Gender, Science, &amp; Engineering</td>
<td></td>
</tr>
<tr>
<td>WGST 326</td>
<td>Poverty and Discrimation</td>
<td></td>
</tr>
<tr>
<td>WGST 336</td>
<td>Perspectives in Women's Health</td>
<td></td>
</tr>
<tr>
<td>WGST 338</td>
<td>Women-Islam Mid East to 1900</td>
<td></td>
</tr>
<tr>
<td>WGST 362</td>
<td>Women, Politics, and the Law</td>
<td></td>
</tr>
<tr>
<td>WGST 366</td>
<td>Sexualities, Genders, &amp; Bodies</td>
<td></td>
</tr>
<tr>
<td>WGST 370</td>
<td>Women in America-Hist Perspect</td>
<td></td>
</tr>
<tr>
<td>WGST 388</td>
<td>LGBTQ Religious Experience</td>
<td></td>
</tr>
<tr>
<td>WGST 393</td>
<td>Black Women, Rel &amp; Spirituality</td>
<td></td>
</tr>
<tr>
<td>WGST 404</td>
<td>Dised: Differ, Power, Discrim</td>
<td></td>
</tr>
<tr>
<td>WGST 405</td>
<td>Gender Roles</td>
<td></td>
</tr>
<tr>
<td>WGST 408</td>
<td>Gender, Pwr &amp; Intl Development</td>
<td></td>
</tr>
<tr>
<td>WGST 412</td>
<td>Men and Masculinity</td>
<td></td>
</tr>
<tr>
<td>WGST 420</td>
<td>Kinship and Marriage</td>
<td></td>
</tr>
<tr>
<td>WGST 436</td>
<td>Reproductive Health Policy</td>
<td></td>
</tr>
<tr>
<td>WGST 446</td>
<td>Marriage and Family Problems</td>
<td></td>
</tr>
<tr>
<td>WGST 447</td>
<td>Family Violence</td>
<td></td>
</tr>
<tr>
<td>WGST 451</td>
<td>Family, Sexuality, Rights</td>
<td></td>
</tr>
<tr>
<td>WGST 461</td>
<td>Cops &amp; Cons: Women in Prison</td>
<td></td>
</tr>
<tr>
<td>WGST 475</td>
<td>Diversity Iss in Mental Health</td>
<td></td>
</tr>
<tr>
<td>WGST 476</td>
<td>Inside Out Prison Exchange</td>
<td></td>
</tr>
<tr>
<td>WGST 481</td>
<td>Gender and Globalization</td>
<td></td>
</tr>
<tr>
<td>WGST 484</td>
<td>Violence Against Women</td>
<td></td>
</tr>
<tr>
<td>WGST 3385</td>
<td>Sex, War, and Violence</td>
<td></td>
</tr>
<tr>
<td>WGST 3651</td>
<td>Women/Leadership/Social Change</td>
<td></td>
</tr>
<tr>
<td>WGST 3955</td>
<td>Diversity and the Workplace</td>
<td></td>
</tr>
<tr>
<td>WGST 4505</td>
<td>Feminism &amp; Mod. Mid. East</td>
<td></td>
</tr>
<tr>
<td>WGST 4650</td>
<td>Sem in US Women's History</td>
<td></td>
</tr>
</tbody>
</table>

**Community-Based Experiential Learning (CAEL)**
Select 3 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGST 362</td>
<td>Women, Politics, and the Law</td>
<td></td>
</tr>
<tr>
<td>WGST 3651</td>
<td>Women/Leadership/Social Change</td>
<td></td>
</tr>
<tr>
<td>WGST 476</td>
<td>Inside Out Prison Exchange</td>
<td></td>
</tr>
<tr>
<td>WGST 478</td>
<td>Women and Gend Studies Intern</td>
<td></td>
</tr>
</tbody>
</table>
Writing (not a field of concentration)

For information on placement into first-year English composition (COMP) courses, please see the Writing Program section under Special Programs (p. 68).

Writing Certificate

Nine credit hours of writing (at least one course must be COMP or cross listed with COMP; minimum B grade required in each course). Here is a partial list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COML/HUM/ WGST 433</td>
<td>Writing Women in Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>COMM 317</td>
<td>Case Studies in Tech Writing</td>
<td>3</td>
</tr>
<tr>
<td>COMM 340</td>
<td>Professional Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMP/ENGL 327</td>
<td>Advanced Exposition</td>
<td>3</td>
</tr>
<tr>
<td>COMP/COMM/ ENGL 364</td>
<td>Writing for Civic Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognates

Six credit hours of upper-level (300/400; 3000/4000 level) coursework in a single CASL discipline. Excluding courses in Women’s and Gender Studies (WGST) or cross-listed courses with Women’s and Gender Studies, and MATH 385, MATH 386, MATH 387. Internships may not be used to satisfy the cognate requirement.

Notes:

1. A maximum of 44 credit hours in WGST may count in the 120 credits required to graduate.
2. At least 15 of the 30 upper level credit hours required in WGST must be elected at UM-Dearborn.
3. Any one course may be used to satisfy only one requirement within the major.

Minor or LIBS Concentration

WGST is also available as a minor or as a concentration in the Liberal Studies major. The minor/concentration requires 15 credit hours of upper level WGST coursework including WGST 303, Introduction to Women’s and Gender Studies.
• Service by faculty and staff that supports an evolving curriculum and the needs of our students, personnel, community, and external partners.

Since 1959, the College of Business at the University of Michigan-Dearborn has been committed to providing practice-oriented business programs that address the needs of business, industry, and government. Our undergraduate and graduate students are taught by faculty who have close ties with the business community as well as expertise from participating in the business, professional, and academic realms.

The exceptional performance of our faculty has provided that the College of Business is one of 786 schools worldwide to be accredited by AACSB International, the Association to Advance Collegiate Schools of Business. This accreditation not only speaks to the quality of the faculty but also to the relevancy and practical nature of the courses offered in the College.

When students graduate from the College of Business, they take with them the skills and knowledge to lead in a rapidly-changing business environment, both regionally and nationally. Whether it is through their participation in our internship program or their experiences in iLabs, the College’s Center for Innovation Research, our students gain real experience and are positioned to immediately contribute to their employers’ success and advance their career.

**Bachelor of Business Administration Program**

The Bachelor of Business Administration (BBA) program is a professionally oriented program that builds upon a strong liberal arts foundation and develops the diversified competencies called for in the management of a modern business enterprise. The program also is designed to impart knowledge of the fundamental administrative skills demanded of the leaders in modern public and private organizations. It also can provide a rigorous preparation for graduate study in management science, business administration, law, and related areas.

**BBA Program Learning Goals**

The following Learning Goals have been developed by the faculty in the College of Business. These goals describe what we want all of our students to know and be able to accomplish upon graduation.

1. Students will be knowledgeable about the business disciplines.
2. Students will be effective communicators.
3. Students will be effective team members.
4. Students will be competent in the application of technology.
5. Students will be knowledgeable about global business practice and managing a diverse workforce.
6. Students will be knowledgeable about ethical principles and their application.
7. Students will apply critical thinking skills to business situations.

**BBA Program Planning for UM-Dearborn Pre-business Students**

Programs of undergraduate study in business administration leading to a bachelor’s degree involve approximately four years of college study, the first two years of which can be considered pre-professional preparation in foundation courses covering fundamental subject matter. The third and fourth years constitute the more specialized professional phase of the degree program. It is in the offering of this professional phase that the faculty of the College of Business has principal responsibility.

Students seeking the BBA degree who are admitted to UM-Dearborn as freshmen enter the pre-business program of the College of Business. The pre-business program is designed to provide students with a liberal arts foundation. Pre-business students declare their major in the BBA program during the term in which they complete their sophomore year and the specific course requirements. Students not enrolled in the BBA program cannot elect more than 30 credit hours in coursework offered by the College of Business.

**Admission**

Admission to the BBA program is competitive and requires that the student has high promise as evidenced by the record compiled in the first two years of study. A student must have completed at least 55 credit hours to be considered for admission to the BBA program. These credit hours must include necessary prerequisites for admission to the BBA program.

Courses required for admission to the BBA Program, including those courses that are prerequisite to the required courses, in which a grade of C- or below has been received, must be repeated during the student’s next academic term. Prerequisite courses are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I and Business Writing &amp; Rhetoric</td>
<td>6</td>
</tr>
<tr>
<td>&amp; COMP 280</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>6</td>
</tr>
<tr>
<td>&amp; ECON 202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA 100</td>
<td>College of Business Foundation</td>
<td>1</td>
</tr>
<tr>
<td>ITM 120</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>6</td>
</tr>
<tr>
<td>&amp; ACC 299</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS 301</td>
<td>Intro Business Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition, students must complete a minimum of 9 credits from the BBA core and/or any additional upper-level business courses.  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credit Hours 38

Minimum 2.80 GPA including DS 301.

Appropriate and timely sequencing of the required math courses is critical for the successful admission to the BBA program. Students, entering as freshmen, are required to have completed math through college algebra or pre-calculus (MATH 104 or MATH 105) by the end of their sophomore year. Freshmen are required to take the math placement exam prior to their first term of enrollment and begin their math courses in their first term of enrollment.

**BBA Program Planning for Transfer Students**

Programs of undergraduate study in business administration leading to a bachelor’s degree involve approximately four years of college study, the first two years of which can be considered pre-professional preparation in foundation courses covering fundamental subject matter. The third and fourth years constitute the more specialized professional phase of the
degree program. It is in the offering of this professional phase that the faculty of the College of Business has principal responsibility.

**Admission**

A transfer student seeking the BBA degree enters the College of Business as a Pre-business student. The transfer student will complete required courses for admission to the BBA Program. Prerequisite courses are UM-D's:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105 &amp; COMP 280</td>
<td>Writing &amp; Rhetoric I and Business Writing &amp; Rhetoric</td>
<td>6</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>6</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>6</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
<tr>
<td>BA 100</td>
<td>College of Business Foundation</td>
<td>1</td>
</tr>
<tr>
<td>ITM 120</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>6</td>
</tr>
<tr>
<td>&amp; ACC 299</td>
<td>and Managerial Accounting</td>
<td></td>
</tr>
<tr>
<td>DS 301</td>
<td>Intro Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>In addition, students must complete a minimum of 9 credits from the BBA core and/or any additional upper-level business courses.</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>38</td>
</tr>
</tbody>
</table>

1 Minimum GPA of 2.80 including DS 301.

The UM-Dearborn Undergraduate Admissions Office provides local community colleges with equivalency tables. These tables should be consulted when planning course scheduling. Transfer students with credit for DS 301 from an AASCB accredited school will be required to complete BE 401 or FIN 401 as part of the 12 credits of upper-level business credits for admission to the BBA Program.

Admission is based on the quality and content of both the high school and the college academic records, and standards of evaluation are designed to ensure that each student who is admitted has the intellectual capacity and the preparation to pursue advanced undergraduate work successfully. Admission criteria are applied to all students without regard to race, color, sex, creed or national origin.

Students who plan to transfer to the BBA program at UM-Dearborn after completing two academic years of course work should plan to complete most of the General Education requirements (Dearborn Discovery Core) prior to transfer. Please refer to the University's website at: https://umdearborn.edu/cob/undergraduate-programs/admission/transfer-students/community-college-transfers for information.

Appropriate and timely sequencing of the required math courses is critical for the successful admission to the BBA program. Pre-business students are encouraged to take the math placement exam prior to their first term of enrollment. Transfer students must progress with math every full term of their enrollment until they complete the math requirement.

**Transfer of Credit**

Full credit will be given for all acceptable courses in which a student has earned at least a C grade at an accredited college. A maximum of 62 credits from a community college and a maximum of 75 credits from a non-UM university or college are accepted for transfer; the total maximum number of non-UM credits not to exceed 75. A maximum of 90 credits from another UM unit are accepted for transfer. The minimum number of hours at UM and in the College of Business as stated in the section on BBA Degree Requirements must also be earned.

**Michigan Transfer Agreement (MTA)**

Refer to this topic under Admissions in the General Information section of this Catalog.

**Articulation Agreements**

The College of Business has articulation agreements with Henry Ford College, Oakland Community College, and Schoolcraft College. Please refer to the University's website at: https://umdearborn.edu/cob/undergraduate-programs/admission/transfer-students/community-college-transfers for information.

**BBA Degree Requirements**

The BBA degree will be granted to those students who meet the following requirements:

Satisfactory completion of at least 120 hours of college-level work distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 100</td>
<td>College of Business Foundation</td>
<td>1</td>
</tr>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 299</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>Business Writing &amp; Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 120</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Transfer students may fulfill the general education requirements with the Dearborn Discovery Core or in part with the completion of the Michigan Transfer Agreement (MTA). Please contact an advisor for information.

Electives to meet the minimum 120 credits for graduation will vary student to student. Courses may count for more than one area requirement. Satisfactory completion of 48-61 hours at UM-Dearborn, with the last 30 of 36 credits taken on the UM-Dearborn campus. A minimum of 30 credits must be completed as a student in the BBA Program.

Achievement of a minimum 2.0 grade point in all UM-Dearborn coursework, in all courses offered by the College of Business, and in the major.

**BBA Prerequisite Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 100</td>
<td>College of Business Foundation</td>
<td>1</td>
</tr>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 299</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>Business Writing &amp; Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 120</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>
or MATH 105 Pre-Calculus

DS 301 Intro Business Statistics 3

In addition, students must complete a minimum of 9 credits from the BBA core and/or any additional upper-level business courses. 1

Total Credit Hours 38

1 Minimum GPA of 2.80 including DS 301.

Note: Each incoming student will take the UM-Dearborn Composition Placement Examination. Freshman must take the exam and enroll in the appropriate level of English Composition in their first term of enrollment. Transfer students must take the exam by the sixth week of the first semester in the College of Business. Performance on the exam will determine which writing courses will be required. Excellent performance on the examination may result in the requirement for COMP 105 and/or COMP 106/COMP 280 being waived. Note that demonstrating proficiency does not grant credit for courses not taken.

Note: All incoming freshmen will take the UM-Dearborn Mathematics Placement Exam and enroll in the appropriate level of math their first term of enrollment. Transfer students without credit for college algebra or pre-calculus or higher level math are required to take the exam by the sixth week of their first semester and begin math, based on their placement, by their second semester of enrollment. Excellent performance on the examination may result in the requirement for MATH 104/MATH 105 being waived. Note that demonstrating proficiency does not grant credit for courses not taken.

Dearborn Discovery Core – General Education Requirements (13-46 hrs)

Courses that satisfy the Dearborn Discovery Core may also apply towards specific BBA requirements. Please refer to the General Information section of this Catalog for requirements.

Critical Thinking Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 3

Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>Select one:</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380 &amp; ACC 381</td>
<td>Accounting Information Systems and Accounting Info Sys Lab 1</td>
<td></td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 34-35

1 ACC 380/ACC 381 is a requirement for students pursuing an Accounting major

Major Requirements (18-21 hrs)

All BBA students must declare and fulfill the requirements for a major in Accounting, Digital Marketing, Finance, General Business, Human Resource Management, Information Technology Management, Marketing, Small Business Management, or Supply Chain Management.

Note: Only one independent study can be applied toward the General Business, Marketing, and Human Resource Management majors. Marketing majors may do more than one if they are iLabs related.

Minor

Students pursuing any degree may wish to complement their academic program with a minor from the College of Business. Courses cannot apply towards both a major and a minor.

BBA Elective Courses

Students must complete a minimum of 120 credits to earn the BBA degree. Elective credits are the non-specific credits each student needs to reach degree completion. College-level courses in any discipline which bear UM-Dearborn or transferable academic credit can apply. College of Business internships (BI 350, etc.) may also apply. Additive credit courses do not carry college-level credit toward program. Courses below the 100 level are additive credit. Non-business co-ops and their related seminars do not carry credit toward a BBA degree.

Majors

- Accounting (p. 157)
- Business Studies as a Secondary Major (p. 158)
- Digital Marketing (p. 159)
- Finance (p. 161)
- General Business (p. 163)
- Human Resource Management (p. 164)
- Information Technology Management (p. 165)
- Marketing (p. 167)
- Small Business Management (http://catalog.umd.umich.edu/undergraduate/college-business/small-business-management)
- Supply Chain Management (p. 168)

Minors

- Accounting (p. 157)
- Digital Marketing (p. 159)
- Finance (p. 161)
- Financial Planning (p. 161)
- Human Resource Management (p. 164)
- Information Technology Management (p. 165)
- Management (p. 166)
- Marketing (p. 167)
- Supply Chain Management (p. 168)
Certificates
- Entrepreneurship (p. 160)
- Financial Planning (p. 163)

Administration
Raju Balakrishnan, PhD, Dean
Claudia Kocher, PhD, Associate Dean
Michael Kamen, PhD, Academic Program Director, Graduate Programs
Susan Wells, MPA, Academic Program Director, Undergraduate Programs

Chairs and Directors
Lee Redding, Chair, Associate Professor, Accounting and Finance
Karen S. Strandholm, Chair, Associate Professor, Management Studies

Internship Career Management Center
Rita Agius, MS, Relationship Manager
Michael Callahan, MBA, Program Director
Arlyan Dailey, Relationship Manager
Pam Morris, Co-operative Internship Coordinator
Tuere Wheeler, MBA, Employee Relationship Manager

Professors Emeriti
Bayou, Mohamed E., PhD, Professor Emeritus of Accounting
Callahan, Thomas J., PhD, Associate Professor Emeritus of Organizational Behavior
Chou, Yu-Min, PhD, Professor Emeritus of Business Economics and Finance
Cowan, Ross D., MF, Associate Professor Emeritus of Operations Management
Culp, William H., PhD, CPA, Professor Emeritus of Business Administration
Czarnecki, Richard E., PhD, CPA, Professor Emeritus of Business Administration
Foran, Michael, PhD, Professor Emeritus of Accounting
Fricke, Cedric V., PhD, Professor Emeritus of Business Administration
Krachenberg, A. Richard, PhD, Professor Emeritus of Marketing
Lev, Benjamin, PhD, Professor Emeritus of Operations Research
Lyons, Thomas F., PhD, Professor Emeritus of Business Administration
Martin, William R.D., MBA, Professor Emeritus of Business Administration
Padmanabhun, K.H., PhD, Associate Professor of Marketing
Steel, Robert, PhD, Professor Emeritus of Organizational Behavior
Streeter, Victor J., PhD, Associate Professor Emeritus of Management Information Systems
Waissi, Gary, PhD, Professor Emeritus of Operations Research

Faculty
Department of Accounting and Finance
Baker, Susan, MBA, University of Michigan, Lecturer
Blatz Jr., Robert, JD, LLM, New York University School of Law, Professor
Broman, Amy, PhD, JD, University of Michigan, Lecturer
Bublitz, Bruce, PhD, CPA, University of Illinois, Professor
Cai, Kelly N., PhD, University of Houston, Professor
Graybeal, Patty, PhD, Virginia Tech University, Lecturer
Green, Brian P., PhD, CPA, Kent State University, Professor
Hayes, Matthew, PhD, Arizona State University, Assistant Professor
Killey, Michael N., PhD, Florida Atlantic University, Assistant Professor
Kobelsky, Kevin, PhD, University of California, Associate Professor
Kocher, Claudia, PhD, Michigan State University, Associate Professor
Miranda, Maria, PhD, University of New Orleans, Lecturer
Philipich, Kirk, DBA, Indiana University, Associate Professor
Redding, Lee, PhD, Princeton University, Associate Professor
Singh, Vivek, PhD, Virginia Technological University, Professor
Valero, Magali, PhD, Arizona State University, Associate Professor
Vlachos, George, MA, State University of New York, Lecturer
Xie, Alice, PhD, Syracuse University, Associate Professor

Department of Management Studies
Ahuvia, Aaron, PhD, Northwestern University, Professor
Balakrishnan, Raju, PhD, Purdue University, Professor
Beatty, Joy, PhD, Boston College, Associate Professor
Chandra, Charu, PhD, Arizona State University, Professor
Chen, Yi-Su, PhD, University of Minnesota, Associate Professor
Drake, Jeanette, PhD, Bowling Green State University, Lecturer
Freeman, Lee, PhD, Indiana University, Associate Professor
Fu, Wayne, PhD, Georgia Institute of Technology, Assistant Professor
Guo, Yi, PhD, Texas A M, Associate Professor
Hartge, Timothy, MA, EdD, University of Michigan-Dearborn, Lecturer
He, Jun, PhD, University of Pittsburgh, Associate Professor
Holowicki, Gerald, MS, Eastern Michigan University, Lecturer
Izberk-Bilgin, Elif, PhD, University of Illinois at Chicago, Associate Professor
Kao, Ta-Wei (Daniel), PhD, The State University of New York, Assistant Professor
Kaufman, David, PhD, University of Michigan, Assistant Professor
Keyes, Patrick, MBA, Central Michigan University, Lecturer
Klein, Barbara D., PhD, University of Minnesota, Professor
Kumar, Kamalesh, PhD, University of North Texas, Professor
Lee, Hei Wai, PhD, University of Illinois at Urbana-Champaign, Professor
Lee, Junghyun (Jessie), PhD, George Washington University, Assistant Professor
Liu, Zhixin, PhD, The Ohio State University, Associate Professor
Majeske, Katherine, MBA, University of Michigan, Lecturer
Molloy, Janice, PhD, The Ohio State University, Associate Professor
Rauschnabel, Philipp, PhD, University of Bamberg Germany, Assistant Professor
Ro, Young, PhD, University of Michigan, Professor
Samfilippo, Chris, MBA, Wayne State University, Lecturer
Scott, Crystal, PhD, Pennsylvania State University, Associate Professor
Smrt, Diana, PhD, Southern Illinois University, Lecturer
Statt, Anne-Louise, PhD, Princeton University, Lecturer
Strandholm, Karen S., JD, PhD, Indiana University, Associate Professor
Su, Hung-Chung, PhD, University of Minnesota, Assistant Professor
Urbaczewski, Lise, MS, Eastern Michigan University, Lecturer
Van Hemert, Michael, JD, University of Michigan, Lecturer
Wimble, Matt, PhD, Michigan State University, Assistant Professor
Yoder, Michele, PhD, University of Wisconsin-Madison, Assistant Professor

**Additional Academic Information**

**Office of Student Services**
The Office of Student Services helps students make informed decisions about their course of study. To provide this help, the Office offers students current and accurate information on College of Business academic policies and procedures, coordinates academic advising, provides necessary College forms and materials, and reviews students’ academic progress and performance at specified intervals.

The Office offers a systematic program of guidance and advising from admission through graduation. Advising occurs in many forms and at various levels. All newly admitted students are required to attend an orientation advising session prior to their registration in the College. Pre-business students with 55 credits will be required to meet with their advisor each subsequent term until they have declared their major in the BBA degree program. In addition, BBA students, upon reaching 85 credit hours are required to submit a degree completion plan (BBA Audit).

The Office is located in:
168 FCS (Fairlane Center South Building)
19000 Hubbard Dr.
Dearborn, MI 48126

**Changes in Course Elections: Add, Drop, Withdrawal**

**Add**
A student may add courses during the first two weeks of a full term or the first week of a half term or mini-term. Refer to the Office of Registration & Records website at https://umdearborn.edu/students/registration-records/registration/adding-courses for procedures and dates. Any exceptions for adding courses must be approved by the Academic Standards Committee of the unit in which the student is enrolled.

**Drop**
A student may drop courses during the first two weeks of a full term or the first week of a half term or mini-term without penalty. Courses may be dropped during the third through the ninth week of a full term, and through the fourth week of a half term. Refer to the Office of Registration & Records website at https://umdearborn.edu/students/registration-records/registration/dropping-courses for procedures and dates.

Students enrolled in a business internship (BI) course are not allowed to drop or withdraw from the course without approval from the Internship Director. Approval to drop courses under circumstances other than stated above will require the approval of the Academic Standards Committee of the College of Business. Petitions to drop a class after the ninth week of a full term or the fourth week of a half term will be considered only under extreme circumstances beyond a student's control, such as illness under the care of a physician which precludes class attendance for periods in excess of a week. Documentation will be required. Failure to receive approval will result in a grade(s) of F for the course or courses.

**Withdrawal**
Refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

**Course Prerequisites**
The faculty has determined the appropriate prerequisites for each course. These prerequisites exist to make sure the student has the specific background necessary not only to minimally complete the course, but also to assure a broad enough background so the student fully benefits from the course. Students must observe all prerequisites in course planning.

**Grading System**
Refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

**Pass/Fail Grading Option**
Students enrolled in the College of Business may elect courses with the pass/fail grading option subject to the following conditions:

This option may not be elected by students on academic probation.

Courses to be taken under this option must be specified at the time of registration or within the regular period for adding courses.
BBA Prerequisite courses and all College of Business courses cannot be elected on a pass/fail basis.

In a course offered exclusively on a pass/fail basis, a passing grade will be recorded as S (and not used in computing a student’s grade point average), and a failing grade will be recorded as E (and used in computing grade point average). In a course offered with a pass/fail option, a reported grade of C+ or above will be recorded as P, and a reported grade of below C- will be recorded as F. (Whether a P or F is recorded, the grade is not used in computing a student’s grade point average.) A student may elect at most four courses on a pass/fail basis, excluding internship courses. Courses which are elected on a pass/fail basis in a manner that does not conform to these guidelines will not accrue toward the degree requirements of the student.

Changing from the pass/fail option to a letter grade or vice versa is not permitted after the first two weeks of a full term or after the first week of a half term.

Absence from Final Examinations
Refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

Incomplete Course Work
It is the College of Business students’ responsibility to obtain a contract for any incomplete coursework request, regardless of which academic unit the course is in. Refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

Academic Standing
Refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

Good Scholastic Standing
To be in good scholastic standing, a student must have a 2.0 cumulative grade point average in all UM-Dearborn coursework, in their major, and in all courses offered by the College of Business.

Unsatisfactory Performance
The records of students enrolled in the College of Business are reviewed at the end of each term by the Academic Standards Committee. Two degrees of scholastic deficiency will be used by the committee to identify a student’s unsatisfactory performance resulting from D and E grades:

- probation
- withdrawal

Probationary status will be assigned to students who are not in good scholastic standing (cumulative, College of Business, and/or major grade point average below 2.0) but whose records indicate a possibility for removal of deficiencies by continued enrollment. Students are informed of their academic status and required to schedule an advising appointment.

Students whose academic records are so poor as to indicate little possibility of successful completion of their program will be required to withdraw from the College of Business. If the student is enrolled in coursework at the time the withdrawal decision is made, the withdrawal is effective immediately. The student will be informed, in writing, and that term’s tuition assessment will be adjusted to zero.

D Grades
While any D grade (D, D-, D+) is passing, it is not considered satisfactory performance. Any deficiency of grade points (below 2.0 overall average) resulting from one or more D grades must be made up before the student is restored to good standing. If the student receives a D grade in a course that is an important prerequisite for other courses, it is recommended that the course be repeated.

E Grades
Neither credit nor honor points are granted for a course in which a student receives a grade of E.

Coursework at Other Institutions
BBA students must complete a minimum of 30 of the last 36 credits that apply toward the degree program on the UM-Dearborn campus. Once admitted to the College of Business, the following business courses must be elected at UM-Dearborn: OM 300, DS 301, BA 300, FIN 401, and BPS 451. A maximum of three credits in a student’s major and/or three credits in a student’s minor may be taken outside the UM-Dearborn. Students are encouraged to meet with an advisor if they intend to elect coursework off campus. Please refer to the Registration and Records website: https://umdearborn.edu/students/registration-records/taking-courses-outside-um-dearborn for complete details on guesting at other institutions.

Repeating Courses
Students may repeat a course up to two times for a total of three attempts. Regardless of whether it is higher or lower than the previous grade(s), the last grade assigned in a course will be used in computing the student’s cumulative grade point average and credits earned toward degree. Please refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

Statement on Academic Integrity
The College of Business holds in high value integrity in all relationships and activities. As the College develops students for professional business careers, it must demand not only academic excellence, but academic honesty as well. Students engaged in academic misconduct hurt themselves, their fellow students, the reputation of the College and society as a whole. As such, a culture of zero tolerance for academic misconduct has evolved. Certainly, building a classroom environment that discourages academic misconduct before it surfaces is the ideal. While this can eliminate much of the opportunity for academic misconduct, it is not always sufficient. Consequently, policies that address academic misconduct must be developed. The College’s policy is as follows:

- All cases of academic misconduct in which a faculty member deems is serious enough to penalize must be reported in writing to the Associate Dean. The report should include the student’s name, course, date, brief description of the offense, and the grade sanction. As has historically been the case, the faculty member has the right to decide what the appropriate grade sanction is.
- The faculty member must inform the student of the decision, and provide him/her with a signed copy of the report.
- The student has the right to appeal the decision through existing College and University channels. The Associate Dean will retain all reports of academic misconduct that have been upheld. Decisions are upheld in two ways: when they are not challenged by the student or when the faculty case has been supported through an appeals process.
- All cases are strictly confidential. With the exception noted below, COB faculty, staff and/or the Hearing Board will not have access to this information.
• The Associate Dean will remand any case of repeat academic misconduct by a College of Business student to the School's Academic Standards Committee for formal action. Except in the rarest of circumstances, two violations will result in expulsion from the College of Business.

Petitions for Academic Action
Each request to the faculty of the College of Business for special academic action relative to credits, requirements, standing, etc., should be entered on the appropriate petition form (available in the Student Services Office) and forwarded, with appropriate documentation, to the office for review by the Academic Standards Committee.

Student Academic Conduct
A student in the College of Business or any student enrolled in a College of Business course will not engage in academic misconduct, including, but not limited to, plagiarism, cheating, fabrication, aiding and abetting dishonesty or falsification of records and official documents as defined in the Statement of Student Rights and Code of Student Conduct. Definitions of prohibited conduct, sanctions, procedures for applying sanctions, and appellate procedures are specifically set out in the Statement.

Student Personal Conduct
Any conduct which can be the grounds for civil or criminal lawsuit shall be subject to sanctions by the College of Business.

Right of Appeal
Refer to this topic in the General Information section of this Catalog.

Change of Degree Programs between Colleges
See Admission under Program Planning for UM-Dearborn Students. Information is available at the College Office.

Class Standing
Refer to this topic under Campus Policies and Procedures in the General Information section of this Catalog.

Grade Reports
Refer to this topic under Reporting of Grades in the General Information section of this Catalog.

Requests for Transcripts
Refer to this topic under Transcripts in the General Information section of this Catalog.

Second Baccalaureate Degree from the College of Business
Students that have already earned a BBA may apply to the Office of Undergraduate Admissions if they want to pursue a second degree. Students must meet current admission criteria. If admitted, a second baccalaureate degree will be granted to those students who meet the following minimum requirements:

Satisfactory completion of the BBA Prerequisite Requirements, Dearborn Discovery Core, BBA Core, and Major coursework required for the degree sought.

Satisfactory completion of at least 30 semester hours of coursework while enrolled in the College of Business as a post-baccalaureate student; at least 21 hours of this course-work must be in courses offered by the College of Business.

Achievement of at least a 2.0 grade point average in all coursework and in courses offered by the College of Business.

Inactive Student Status
A student may be inactive for a maximum of two consecutive terms and maintain eligibility to register. A student who is declared inactive as a result of not being enrolled for any coursework during a 12-month period must apply for readmission to the College. A decision on readmission will be based upon the past performance of the student and enrollment space available in the College at that time. Upon readmission, a student who has been inactive will be required to satisfy any program requirements that have been added in his/her absence.

Internship & Career Management Center (ICMC)
Building a career and building a business are actually quite similar.
To build a business you must identify an unmet need, develop a plan to serve that need, develop a strategy to market your product or service and lastly, ensure that your customer is satisfied. To build a career you must identify where there is an opportunity, develop a personal plan to be able to respond to that opportunity, develop a plan to market yourself and lastly, ensure that you are providing value to the market. We help our students develop a viable career plan that will serve them and their employers in the short term as well as throughout their careers. We are looking forward to working with you and remember, the ICMC - Works4U!

Take Control of your Career!
We help students develop a personal career strategy that helps them:

• Apply the skills and knowledge developed in the classroom
• Continue to build a strong track record of experiences
• Successfully network with other business professionals and executives

Career Development Process
Our process starts when the student submits the ICMC interest form located our web page. It then continues as the student learns to take advantage of the services that we provide. That may involve enrolling in BA 300 (Career Planning and Development) and/or participating in our Career Mentoring Program and/or the Internship Program, and finally culminates with the successful launch of their career upon graduation.

In addition and as part of the preliminary graduation process, we want to meet with graduating students to help determine and facilitate their post-graduation career plans. We offer career counseling, interviewing skills and salary negotiation tips

BA 300 - Career Planning and Development
You are encouraged to register for BA 300 as soon as you are eligible. This course provides you with the fundamentals to be more successful in your career pursuits. Through many activities and personal reflection opportunities, we help students take control of their careers by:

• Helping them identify their interests and passions
• Identifying ways for them to pursue those passions
• Learning how to effectively market themselves in today's economy
Career Mentoring
We offer a referral source for students to choose a potential mentor in their major or industry of interest. We also help students facilitate the conversations and interactions with these mentors in order to help them with the skills that they need. There is not one-way to work with a mentor, we want to help students find what works for them.

Internship Program
The College of Business Internship Program provides unparalleled opportunities for University of Michigan-Dearborn, College of Business students of all disciplines to enhance their academic experience by applying their education in actual business environments. Through an internship, students apply the skills and knowledge they have developed in the classroom, build a strong track record and enhance their relationship skills with business leaders in the community.

All COB students are eligible for an internship experience. Junior and Senior BBA students have the option of pursuing an internship for academic credit, as part of their career strategy. These students often have the option of considering internships that are either part or full time in several different industries. The vast majority of our internships are paid. The average salary for undergraduate students is $14/hour.

Students who participate in the program get the opportunity to:
• Apply classroom theory to actual work situations
• Test out their interests and develop their long-range career plans
• Earn elective course credits toward their degree requirements
• Enhance their marketability after graduation
• Earn money
• Develop experience and maturity by strengthening their resourcefulness, problem-solving skills, self-confidence, self-discipline, and their sense of responsibility
• Potentially gain faster promotions once they are hired, than their non-internship experienced co-workers
• Develop human relations and communication skills through interaction in career settings

For a student to participate in the internship program, the following policies are required:
• Student must sign and comply with an Internship Contract.
• Student must have at least a cumulative GPA of 2.7 in order to participate.
• During the internship, the student will be required to submit periodic updates via Canvas and submit a final paper summarizing their internship experience.
• If a Business Internship course is elected, a grade of Satisfactory or E will be recorded on your transcript once the internship has been successfully completed.
• Internship work commitments can be for one or multiple semesters and are negotiated between the student and the employer.
• Internship Certificates are awarded to students who successfully complete six hours of COB internship credit.

Students enrolled in BI 350, BI 450, or BI 470 are considered to be full-time by the University of Michigan-Dearborn. Students enrolled in these courses must get permission from the Internship office to elect up to two additional courses while on internship.

Students enrolled in BI 355, BI 455, or BI 475 are considered to be part-time by the University of Michigan-Dearborn and are expected to manage their overall course load in a manner that is consistent with the employer’s needs and the needs of the student.

For the BBA degree, up to six internship credit hours can be applied to elective courses. Internships are available in all College of Business major disciplines.

Career Counseling
Our office is always open to help students on a one on one basis. Some students drop in for a brief conversation while others schedule a more private counseling session with someone from our staff to help them with the myriad of challenges that they may face in their personal career. Feel free to take advantage of this support whenever you need it.

Placement Support
Finally, as the student approaches their graduation date, we work closely with them to help them understand potential professional certification options, as well as employer development programs, that might help them be even more successful in their careers. We then help connect the student with firms where viable opportunities exist in the field of their choosing.

Get Started!
If you have not done so already, visit the ICMC website to let us know you are interested in working with us. Then come by for an initial counseling session, sign up for BA 300 - Career Planning and Development as soon as possible, and get ready to take advantage of the valuable processes that will help you while in school but also as you graduate and begin to launch your career.

If you have any questions, stop by our office at FCN 285 and we can help you get the ball rolling.

For additional information regarding our programs, please visit the website at: umdearborn.edu/cob/life-cob/internship-career-management-center.

Academic Honors
Dean's List
A student is honored by inclusion in the Dean's List if he or she meets two conditions:
1. has completed at least 12 credit hours in graded coursework toward a degree during the term, and
2. has achieved a 3.50 or better term GPA. The Dean's List is compiled after the fall, winter, and summer terms.

Beta Gamma Sigma
Beta Gamma Sigma is the national honor society for business schools accredited by AACSB-The Association to Advance Collegiate Schools of Business. Membership in Beta Gamma Sigma is one of the highest scholastic honors that a student in the BBA program can achieve. It is based on outstanding scholastic achievement as measured by overall grade point average. Invitation for membership to Beta Gamma Sigma is extended to qualified BBA juniors and seniors in the top 5 percent of their class.

Honor Scholars
Every year, an honor scholar from each major may be selected and recognized at the Annual Honors Convocation. Selection is made by the
College of Business’s Scholarship Committee based on the students’ GPA (both cumulative and major GPA) and achievement of 90 credit hours or more toward degree.

Chancellor’s Medallion
The Chancellor’s Medallion is awarded at each Commencement Exercise to UM-Dearborn graduates including one from the College of Business. The student is selected by the Scholarship Committee based on his/her quality of character, vitality, intellect, integrity and academic record. The Fall awardee is selected from students who were graduated in August and those who are to be graduated in December. The Winter awardee is selected from students who are to be graduated in April/May.

Graduation with Distinction
Students who are degree candidates in Business and have obtained a cumulative GPA of at least 3.20 but less than 3.60 are recommended for graduation “With Distinction.” Such distinctions are noted on transcripts and diplomas.

Graduation with High Distinction
Students who are degree candidates in Business and have obtained a cumulative GPA of at least 3.60 are recommended for graduation “With High Distinction.” Such distinctions are noted on transcripts and diplomas.

Accounting
The Accounting major provides the student with a foundation to pursue a career in accounting. Whether you are interested in entering the corporate world or preparing to be a CPA, we have a program flexible enough to serve your needs. Our students are challenged to recognize and define complex business problems, explore alternatives, and effectively communicate successful solutions. Students in the Accounting major at UM-Dearborn can complete the CPA exam preparation course through CPAexcel® at a significant discount, and even qualify to receive a 100% reimbursement.

Accounting 4+1 Option
The Accounting 4+1 Option allows students to earn both the BBA in Accounting and the Master of Science in Accounting at a substantial savings in time and money. Students in the program may count three graduate accounting courses toward the BBA Accounting major and the MS-Accounting at the same time, thereby saving three courses. Students will receive scholarships to reduce the net cost of these three shared courses to undergraduate tuition rates. Please see the College’s website at: umdearborn.edu/cob/undergraduate-programs/majors-minors-curriculum/accounting for admission requirements and program details.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

Business Administration Core Requirements
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380</td>
<td>Accounting Information Systems &amp; Accounting Info Sys Lab</td>
<td>3</td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>37-38</td>
</tr>
</tbody>
</table>

Note: ACC 380/ACC 381 is a requirement for students pursuing an Accounting major.

Major Requirements
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 355</td>
<td>Cost Accounting and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ACC 356</td>
<td>Intermediate Financial Acct 1</td>
<td>3</td>
</tr>
</tbody>
</table>
ACC 357  Intermediate Financial Acct 2  3
ACC 360  Federal Income Taxation  3
ACC 457  Auditing  3
FIN 402  Advanced Corporate Finance  3
Select one course from the following:  3
   ACC 403  Advanced Managerial Accounting
   ACC 416  Advanced Financial Acct 1
   ACC 438  Advanced Federal Income Tax
   ACC 439  Not-for-Profit Accounting
   LE 453  Business Law: Advanced Topics

Total Credit Hours  21

Students admitted to the 4+1 Option may substitute ACC 560 for ACC 360, ACC 557 for ACC 457, and ACC 516 for ACC 416.

Accounting Minor
Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 299</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 355</td>
<td>Cost Accounting and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ACC 356</td>
<td>Intermediate Financial Acct 1</td>
<td>3</td>
</tr>
<tr>
<td>or ACC 358</td>
<td>Financial Reporting</td>
<td></td>
</tr>
<tr>
<td>ACC 360</td>
<td>Federal Income Taxation</td>
<td>3</td>
</tr>
<tr>
<td>ACC 380</td>
<td>Accounting Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>&amp; ACC 381</td>
<td>and Accounting Info Sys Lab</td>
<td></td>
</tr>
</tbody>
</table>
Select one course from the following:  3
   ACC 357  Intermediate Financial Acct 2
   ACC 403  Advanced Managerial Accounting
   ACC 439  Not-for-Profit Accounting
   ACC 457  Auditing

Total Credit Hours  16

Finance majors may use ACC 358 towards an accounting minor.

Business Studies as a Secondary Major

(not available to College of Business majors)

The Business Studies major combines foundational courses in business with the liberal arts. It is meant to complement a non-business student’s program of study by offering primary business topics as well as the necessary analytical tools required for careers in management related fields. Students cannot pursue this major either on its own or in conjunction with a business major.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Prerequisites to the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td></td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

<table>
<thead>
<tr>
<th>Foundational Studies</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written and Oral Communication (GEWO)</td>
<td>6 Credits (p. 15)</td>
</tr>
<tr>
<td>Upper Level Writing Intensive (GEWI)</td>
<td>3 Credits (p. 15)</td>
</tr>
<tr>
<td>Quantitative Thinking and Problem Solving (GEQT)</td>
<td>3 Credits (p. 16)</td>
</tr>
</tbody>
</table>

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

<table>
<thead>
<tr>
<th>Natural Science (GENS)</th>
<th>7 Credits (p. 17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lecture/Lab Science Course</td>
<td></td>
</tr>
<tr>
<td>• Additional Science Course</td>
<td></td>
</tr>
<tr>
<td>Social and Behavioral Analysis (GEB)</td>
<td>9 Credits (p. 18)</td>
</tr>
<tr>
<td>Humanities and the Arts (GEHA)</td>
<td>6 Credits (p. 19)</td>
</tr>
<tr>
<td>Intersections (GEIN)</td>
<td>6 Credits (p. 20)</td>
</tr>
</tbody>
</table>

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>ÖB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>
Select one course from the following:  3
   DS 300  Quantitative Model and Anlys I
   ECON 305 | Economic Statistics                     |
   MATH 325 | Probability                           |
   PSYC 381 | Prin of Stat and Exper Design   |

<table>
<thead>
<tr>
<th>Required</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
</tr>
<tr>
<td>ÖB 354</td>
<td>Behavior in Organization</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
</tr>
</tbody>
</table>
Select one course from the following:  3
   DS 300  Quantitative Model and Anlys I
   ECON 305 | Economic Statistics                      |
   MATH 325 | Probability                           |
   PSYC 381 | Prin of Stat and Exper Design |

Total Credit Hours  16
Track
Select one of the following Tracks below 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours 30</td>
<td></td>
</tr>
</tbody>
</table>

1 Some courses listed here may have additional prerequisites that could add to the total credit hours needed.

**Tracks**

**General Business Track**

Three courses from any 300 or 400 level COB course (Excluding BA 300, BPS 451, and any BI course). No two of which can be from the same discipline.

**Communications Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 340</td>
<td>Professional Communication</td>
<td>3</td>
</tr>
<tr>
<td>or BA 330</td>
<td>Managerial Communication</td>
<td></td>
</tr>
</tbody>
</table>

Select two courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 220</td>
<td>Intro to Media &amp; Culture</td>
<td>6</td>
</tr>
<tr>
<td>COMM 250</td>
<td>Public Relations Principles</td>
<td></td>
</tr>
<tr>
<td>COMM 300</td>
<td>Communication Research Methods</td>
<td></td>
</tr>
<tr>
<td>COMM 360</td>
<td>Social Media for PR</td>
<td></td>
</tr>
<tr>
<td>COMM 366</td>
<td>Public Comm and Culture Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 420</td>
<td>Critical Media Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 460</td>
<td>Public Relations Campaigns</td>
<td></td>
</tr>
<tr>
<td>COMM 477</td>
<td>Prof Communication Ethics</td>
<td></td>
</tr>
<tr>
<td>MKT 458</td>
<td>Advertising</td>
<td></td>
</tr>
</tbody>
</table>

**Economics Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>Three courses from the following:</td>
<td>9</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td></td>
</tr>
<tr>
<td>BE 403</td>
<td>Business Conditions Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 301</td>
<td>Intermediate Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 302</td>
<td>Intermediate Microeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 311</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>ECON 321</td>
<td>Labor in the American Economy</td>
<td></td>
</tr>
<tr>
<td>ECON 331</td>
<td>Industrial Organization</td>
<td></td>
</tr>
<tr>
<td>ECON 335</td>
<td>Experimental Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 433</td>
<td>Antitrust and Regulation</td>
<td></td>
</tr>
<tr>
<td>ECON 447</td>
<td>International Finance</td>
<td></td>
</tr>
<tr>
<td>ECON 448</td>
<td>International Trade</td>
<td></td>
</tr>
<tr>
<td>ECON 4021</td>
<td>Economics of the Labor Sector</td>
<td></td>
</tr>
<tr>
<td>FIN 443</td>
<td>Com Bank: Functn and Operatns</td>
<td></td>
</tr>
<tr>
<td>IB 441</td>
<td>International Financial Mgmt</td>
<td></td>
</tr>
<tr>
<td>IB 446</td>
<td>International Business</td>
<td></td>
</tr>
</tbody>
</table>

**Psychology Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>Three courses from the following:</td>
<td>9</td>
</tr>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td></td>
</tr>
<tr>
<td>MKT 382</td>
<td>Understanding Customers</td>
<td></td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 363</td>
<td>Cognitive Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 3955</td>
<td>Diversity and the Workplace</td>
<td></td>
</tr>
<tr>
<td>PSYC 4305</td>
<td>Psychology in the Workplace</td>
<td></td>
</tr>
<tr>
<td>PSYC 464</td>
<td>Applied Cognitive Psychology</td>
<td></td>
</tr>
</tbody>
</table>

**Digital Marketing**

Digital marketing is where marketing meets digital media, such as the internet, social media, cell phones and video games. Digital marketing covers activities such as search engine optimization, viral marketing, web analytics, social network marketing, experiment-based market research, and reputation management. Majoring in digital marketing and marketing is not permitted.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)
Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380&amp; ACC 381</td>
<td>Accounting Information Systems &amp; Accounting Info Sys Lab</td>
<td></td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mkrg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 37-38

1 Note: ACC 380/ACC 381 is a requirement for students pursuing an Accounting major.

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 363</td>
<td>Digital Consumer Srch&amp;Mktg</td>
<td>3</td>
</tr>
<tr>
<td>MKT 454</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>MKT 455</td>
<td>E-tailing and Retailing</td>
<td>3</td>
</tr>
<tr>
<td>MKT 458</td>
<td>Advertising</td>
<td>3</td>
</tr>
<tr>
<td>MKT 463</td>
<td>Digital Analytics&amp;Content Mktg</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS 310</td>
<td>Data Mining for Bus Intel</td>
<td></td>
</tr>
<tr>
<td>MKT 382</td>
<td>Understanding Customers</td>
<td></td>
</tr>
<tr>
<td>MKT 402</td>
<td>Marketing Management</td>
<td></td>
</tr>
<tr>
<td>MKT 457</td>
<td>Gbl Mkting&amp;Consumr Cultre</td>
<td></td>
</tr>
<tr>
<td>MKT 460</td>
<td>Digital Comm Strategy</td>
<td></td>
</tr>
<tr>
<td>ITM 321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 371</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 382</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 21

Digital Marketing Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 352</td>
<td>Mkrg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>MKT 363</td>
<td>Digital Consumer Srch&amp;Mktg</td>
<td>3</td>
</tr>
<tr>
<td>MKT 463</td>
<td>Digital Analytics&amp;Content Mktg</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the following: 6

Entrepreneurship

The Certificate in Entrepreneurship can complement any field of study.

Gain the tools and skills you need to familiarize yourself with tasks such as market assessment, capital formation, business planning, effective communication, staffing, systems design, financial planning and operations management. This certificate focuses on the research, planning, and strategies that are critical to start a new business, take over a family business, or quickly advance in your field. The program is open to all undergraduate students at UM-Dearborn, as well as guest students with or without college degrees.

Admission

Current UM-Dearborn undergraduate students:

- Open to anyone with a GPA of at least 2.0.
- Must declare the Entrepreneurship certificate by submitting the declaration of certificate form (https://umich.app.box.com/s/4dt8koj3qwwwryuyyp2qjaxyj6pcanyvx) to their academic unit office.

Guest students:

- Open to anyone interested in learning more about entrepreneurship.
- Guest students should fill out the UM-Dearborn guest application (http://umdearborn.edu/gueststudents). Then, notify the College of Business by filling out the declaration of certificate form (http://umdearborn.edu/cob/fileadmin/template/som/files/undergrad/docs/Declaration_of_Certificate.pdf) and send it to cboatin@umich.edu or drop it off in the student services office at 168 Fairlane Center South. (Admission to persons not holding a college degree will be limited to five per academic term.)

Goals of the Certificate

Goal 1: Students will apply a working knowledge of the principles of entrepreneurship to analysis and problem solving. Objectives: Students will be able to:

- 1a Creatively analyze the business environment for opportunities
- 1b Recognize problems and convert them into opportunities

Goal 2: Students will understand how to apply entrepreneurial techniques in an organizational setting. Objectives: Students will be able to:

- 2a Use the entrepreneurial mindset in various business settings
- 2b Apply the concepts of entrepreneurship in their chosen field of work

Goal 3: Students will gain an understanding of the steps that might take in their own entrepreneurial pursuits. Objectives: Students will be able to:

- 3a Identify local resources for starting their own entrepreneurial ventures
Certificate Requirements
The Certificate in Entrepreneurship requires 3 courses (9 credits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking &amp; Behav</td>
<td>3</td>
</tr>
<tr>
<td>ENT 401</td>
<td>New Venture Planning</td>
<td>3</td>
</tr>
<tr>
<td>ENT 402</td>
<td>Entrep, Corp Entrep &amp; Society</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Finance
The Finance major offers flexibility for developing careers in investments, financial institutions and corporate finance. The program offers analytical rigor, theoretical knowledge and teaching methods that stress hands-on applications. The Program also equips students for the relevant professional examinations such as Chartered Financial Analysts (CFA), Certified Financial Management (CFM), and Certified Financial Planning (CFP). Finance internships historically have proven to be among the most numerous and challenging available. Students majoring in Finance may choose an optional concentration in Financial Management or Financial Services.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)
Finance Major with a concentration in Financial Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>ACC 357 Intermediate Financial Acct 2</td>
<td>3</td>
</tr>
<tr>
<td>or ACC 358 Financial Reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 402 Advanced Corporate Finance</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 407 Investment Fundamentals</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IB 441 International Financial Mgmt</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 445 Corporate Fin Models and Apps</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select two courses from the following (at least one course must be from BE, FIN, or IB): 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 355 Cost Accounting and Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 416 Advanced Financial Acct 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE 403 Business Conditions Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 402 Advanced Corporate Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 447 Derivative Markets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 484 Seminar: Financial Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 494 Research: Financial Mgt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 382</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Finance Minor

Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298 Financial Accounting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECON 201 Prin: Macroeconomics</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>&amp; ECON 202 and Prin: Microeconomics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 104 College Algebra</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>or MATH 105 Pre-Calculus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS 301 Intro Business Statistics</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 401 Corporate Finance</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 402 Advanced Corporate Finance</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 407 Investment Fundamentals</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select two courses from the following: 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 358 Financial Reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 443 Com Bank: Functn and Operatns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 445 Corporate Fin Models and Apps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 447 Derivative Markets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 484 Seminar: Financial Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IB 441 International Financial Mgmt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Finance Major with a concentration in Financial Services

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>ACC 357 Intermediate Financial Acct 2</td>
<td>3</td>
</tr>
<tr>
<td>or ACC 358 Financial Reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 406 Fin Mkts and Institutions</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 407 Investment Fundamentals</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 443 Com Bank: Functn and Operatns</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 447 Derivative Markets</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select two courses from the following (at least one from BE, FIN, or IB): 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE 403 Business Conditions Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 402 Advanced Corporate Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 411 Financial Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 456 Fixed Income Securities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 484 Seminar: Financial Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 494 Research: Financial Mgt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IB 441 International Financial Mgmt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 382</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKT 434 Sales Mgmt &amp; Personal Selling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Finance Minor

Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298 Financial Accounting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECON 201 Prin: Macroeconomics</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>&amp; ECON 202 and Prin: Microeconomics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 104 College Algebra</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>or MATH 105 Pre-Calculus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS 301 Intro Business Statistics</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 401 Corporate Finance</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 407 Investment Fundamentals</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 411 Financial Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIN 412 Retirement Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or ACC 360 Federal Income Taxation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from the following: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 360 Federal Income Taxation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 406 Fin Mkts and Institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 412 Retirement Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKT 434 Sales Mgmt &amp; Personal Selling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

1 Finance majors may be eligible to apply internship credit (BI 350 or 450) towards a Finance elective course. These internships must be approved in advance by the discipline faculty and department chairperson. Please see an advisor for specific details.
Financial Planning

The Financial Planning certificate complements a number of fields, such as finance, marketing, accounting, and economics.

Gain the tools and skills you need to familiarize yourself with tasks such as personal financial planning, investment planning, retirement planning, tax planning, estate planning, and risk management. The program is open to all undergraduate students at UM-Dearborn.

Students interested in preparing for the professional financial planning examinations may wish to complete the Financial Planning minor (p. 162), which includes the courses in this certificate program.

Admission

The certificate in Financial Planning is available to current UM-Dearborn undergraduate students:

• Open to any UM-Dearborn undergraduate student with a GPA of at least 2.0.
• Must declare the Financial Planning certificate by submitting the declaration of certificate form (https://umich.app.box.com/s/4dt8koj3qwwyuyup2qjaxyj6pcanyvx) to their academic unit office.

Goals of the Certificate

Goal 1: Students will explain the components of financial planning.

Goal 2: Students will be able to develop a retirement savings plan for an individual.

Goal 3: Students will describe an ethics framework for a personal financial planner.

Certificate Requirements

The Certificate in Financial Planning requires 4 courses or 12 credit hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 411</td>
<td>Financial Planning</td>
<td>3</td>
</tr>
<tr>
<td>FIN 412</td>
<td>Retirement Planning</td>
<td>3</td>
</tr>
<tr>
<td>Select two of the following:</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>ACC 360</td>
<td>Federal Income Taxation</td>
<td></td>
</tr>
<tr>
<td>FIN 407</td>
<td>Investment Fundamentals</td>
<td></td>
</tr>
<tr>
<td>MKT 434</td>
<td>Sales Mgmt &amp; Personal Selling</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Note that the required courses have a prerequisite (FIN 401). This course is required of College of Business students but would be in addition to the 12 credit requirement for most students not in the College of Business.

General Business

The major in general business has been designed for students seeking a broad business background rather than a specialization in any one functional area of business. Coursework to complete the General Business major must be upper division business credits beyond the BBA core (excluding business internship). General Business students will not be permitted to combine this major with any other College of Business major.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380</td>
<td>Accounting Information Systems</td>
<td></td>
</tr>
<tr>
<td>&amp; ACC 381</td>
<td>Accounting Info Sys Lab</td>
<td></td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktp Principles and Policies</td>
<td>3</td>
</tr>
</tbody>
</table>
Human Resource Management

The Human Resources Management major courses are designed as fundamental preparation for positions in human resource management, industrial relations, or general management. A Human Resources Management major would also be valuable to students who are not contemplating a career in human resources, as these courses provide knowledge and skills for selecting, developing, motivating, retaining, evaluating, and directing employees - skills needed by managers in any technical or business domain.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ACC 380&amp; ACC 381</td>
<td>Accounting Information Systems and Accounting Info Sys Lab</td>
<td>1</td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 37-38

1   Note: ACC 380/ACC 381 is a requirement for students pursuing an Accounting major.

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td>3</td>
</tr>
</tbody>
</table>
### Human Resource Management Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Plus three courses from the following (must elect at least two courses in HRM):</td>
<td>9</td>
</tr>
<tr>
<td>HRM 406</td>
<td>Staffing, Training &amp; Develop</td>
<td></td>
</tr>
<tr>
<td>HRM 407</td>
<td>Compensation &amp; Performance Mgt</td>
<td></td>
</tr>
<tr>
<td>HRM 408</td>
<td>Employment Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one course from the following: 3
- OB 403 Negotiation and Conflict Mgt
- OB 404 Intl Dimensions of Org Behav

Select one course from the following: 1
- ECON 321 Labor in the American Economy
- ECON 4021 Economics of the Labor Sector
- HRM 485 Seminar: Human Resource Mgmt
- HRM 495 Research: Human Resources
- OB 401 Management Skills Development
- OB 402 Organizational Change & Devlp
- OB 403 Negotiation and Conflict Mgt
- OB 404 Intl Dimensions of Org Behav
- OB 485 Seminar: Organizational Behavior
- OB 495 Research: Organizational Behav
- PSYC 3955 Diversity and the Workplace
- SOC 442 Sociology of Work

**Total Credit Hours**: 18

1. HRM majors may be eligible to apply internship credit (BI 350 or 450) towards a HRM elective course. These internships must be approved in advance by the discipline faculty and department chairperson. Please see an advisor for specific details.

### Information Technology Management

The Information Technology Management major is designed to prepare students for positions in system development, system analysis, database administration, networking, and as ITM specialists in user departments such as finance, human resource management, marketing, and operations management. The major is also designed to prepare students to assume increasing levels of managerial responsibility as their career progresses. This course of study includes the components of computer-based information systems: hardware, software, telecommunications, databases, people (the people who develop, manage, run, program, maintain, and use the systems), and procedures (strategies, policies, methods, and rules involved in all aspects of information systems).

This program teaches these principles and their application in a holistic and integrated fashion using a combination of traditional classroom instruction, case studies, projects, and hands-on methods.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

### Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

### Foundational Studies

- **Written and Oral Communication (GEWO)** – 6 Credits (p. 15)
- **Upper Level Writing Intensive (GEWI)** – 3 Credits (p. 15)
- **Quantitative Thinking and Problem Solving (GEQT)** – 3 Credits (p. 16)
- **Critical and Creative Thinking (GECC)** – 3 Credits (p. 16)

### Areas of Inquiry

- **Natural Science (GENS)** – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- **Social and Behavioral Analysis (GESB)** – 9 Credits (p. 18)
- **Humanities and the Arts (GEHA)** – 6 Credits (p. 19)
- **Intersections (GEIN)** – 6 Credits (p. 20)

### Capstone

Capstone (GECE) – 3 Credits (p. 22)

### Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select one of the following: 3-4</td>
<td></td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380</td>
<td>Accounting Information Systems</td>
<td></td>
</tr>
<tr>
<td>&amp; ACC 381</td>
<td>and Accounting Info Sys Lab 1</td>
<td></td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
</tbody>
</table>
MKT 352  Mktg Principles and Policies 3
OB 354  Behavior in Organization 3
OM 300  Intro to Operations Management 3

Total Credit Hours 37-38

1 Note: ACC 380/ACC 381 is a requirement for students pursuing an Accounting major.

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 301</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 321</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 331</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 351</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 431</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Select two courses from the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ITM 302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 303</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 371</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 382</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 383</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 21

Information Technology Management Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITM 310</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 321</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 351</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Select two courses from the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ITM 301</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 371</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 382</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 383</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 431</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 15

Management

These required courses are designed to provide each student with the fundamentals necessary to enter and develop a career in administration. A student may supplement these foundation courses with elective courses from several disciplines or extend and deepen career preparation with more advanced work in a particular area of administration or analysis.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational Studies</td>
</tr>
<tr>
<td>Written and Oral Communication (GEWO) – 6 Credits (p. 15)</td>
</tr>
<tr>
<td>Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)</td>
</tr>
<tr>
<td>Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)</td>
</tr>
<tr>
<td>Critical and Creative Thinking (GECC) – 3 Credits (p. 16)</td>
</tr>
</tbody>
</table>

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380</td>
<td>Accounting Information Systems</td>
<td></td>
</tr>
<tr>
<td>&amp; ACC 381</td>
<td>and Accounting Info Sys Lab 1</td>
<td></td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mktg Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 37-38
Note: ACC 380/ACC 381 is a requirement for students pursuing an Accounting major.

**Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td>3</td>
</tr>
<tr>
<td>MKT 402</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 401</td>
<td>Management Skills Development</td>
<td>3</td>
</tr>
<tr>
<td>OM 460</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>Select one course from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 358</td>
<td>Financial Reporting</td>
<td>3</td>
</tr>
<tr>
<td>FIN 402</td>
<td>Advanced Corporate Finance</td>
<td></td>
</tr>
<tr>
<td>IB 441</td>
<td>International Financial Mgmt</td>
<td></td>
</tr>
<tr>
<td>ITM 321</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>or ITM 382</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

**Management Minor**

*(not available to College of Business students)*

**Prerequisites**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
</tbody>
</table>

**Minor Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mkgt Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>Plus three courses from at least two disciplines from ACC 299 and/or any 300-400 level courses offered in the College of Business.</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

**Marketing**

Marketing covers the creation of new products and services, the distribution of products from suppliers and manufacturers down to the final consumers, the pricing of products, as well as advertising, sales, and other promotional initiatives. The marketing major provides students an opportunity to develop skills for careers in marketing management, advertising, sales, marketing research, new product development, retailing, international business, purchasing, management of nonprofit organizations, and general business management. Their functional visibility enables high-achieving marketing persons to be aptly recognized, promoted, and compensated. Marketing is also an excellent major for students who are considering starting their own business. Majoring in digital marketing and marketing is not permitted.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Business Administration Core Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 380</td>
<td>Accounting Information Systems</td>
<td></td>
</tr>
<tr>
<td>&amp; ACC 381</td>
<td>Accounting Info Sys Lab 1</td>
<td></td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mkgt Principles and Policies</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>37-38</td>
<td></td>
</tr>
</tbody>
</table>
Supply Chain Management

The major in Supply Chain Management provides students with opportunities for careers in e-business, startups, manufacturing, high tech, service and consulting companies. Supply Chain Management encompasses a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses and stores so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements. SCM is an interdisciplinary field that emphasizes cross-functional links and seeks to manage those links to enhance a company’s competitive advantage.

Prerequisites for all courses must be met. Students not enrolled in the College of Business BBA program cannot elect more than 30 credit hours in courses offered by the College of Business. BBA students must complete 12 credits outside their major to earn a minor.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Business Administration Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 300</td>
<td>Career Planning &amp; Develop</td>
<td>1</td>
</tr>
<tr>
<td>BA 320</td>
<td>Proj Mgmt &amp; Leadership Skills</td>
<td>3</td>
</tr>
<tr>
<td>BA 330</td>
<td>Managerial Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 400</td>
<td>Corporate Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>BE 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BPS 451</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 302</td>
<td>Advanced Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>ITM 310</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ACC 380&amp; ACC 381</td>
<td>Accounting Information Systems &amp; Accounting Info Sys Lab</td>
<td>1</td>
</tr>
<tr>
<td>LE 253</td>
<td>Business Law</td>
<td>3</td>
</tr>
</tbody>
</table>
Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OM 460</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>OM 465</td>
<td>Strategic Sourcing</td>
<td>3</td>
</tr>
<tr>
<td>OM 470</td>
<td>Analys &amp; Design of Supply Chain</td>
<td>3</td>
</tr>
<tr>
<td>OM 475</td>
<td>Supply Chain Logistics Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>OM 480</td>
<td>ERP in SCM</td>
<td>3</td>
</tr>
<tr>
<td>Select two courses from the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>DS 310</td>
<td>Data Mining for Bus Intel</td>
<td></td>
</tr>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td></td>
</tr>
<tr>
<td>MKT 436</td>
<td>Business to Business Mktg</td>
<td></td>
</tr>
<tr>
<td>OM 493</td>
<td>Research:Operations Management</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Supply Chain Management Minor

Prerequisites

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
</tbody>
</table>

Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM 300</td>
<td>Intro to Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>OM 460</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>Select three courses from the following:</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>OM 465</td>
<td>Strategic Sourcing</td>
<td></td>
</tr>
<tr>
<td>OM 470</td>
<td>Analys &amp; Design of Supply Chain</td>
<td></td>
</tr>
<tr>
<td>OM 475</td>
<td>Supply Chain Logistics Mgmt</td>
<td></td>
</tr>
<tr>
<td>OM 480</td>
<td>ERP in SCM</td>
<td></td>
</tr>
<tr>
<td>OM 493</td>
<td>Research:Operations Management</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

College of Education, Health, and Human Services

Our Work: Education, Health, and the Human Services

The College of Education, Health, and Human Services aims to prepare and sustain exemplary practitioners and administrators for work in the interrelated fields of education, human health, and human services through an emphasis on scholarship, diversity, inclusion, and excellence in service delivery.

The College draws broadly upon institutional resources including faculty and programs in other colleges of the University. Additionally, facilities in local school districts, health-related settings, public agencies and private corporations regularly provide students with a spectrum of rich experiences.

The College contributes to the University of Michigan-Dearborn’s impact as a dynamic metropolitan university in which teaching and research interact to develop leaders and new knowledge in the tradition of the University of Michigan. Students in CEHHS have the opportunity to participate in many organizations within the College, campus, and community.

History of the College

Shortly after UM-Dearborn opened in 1959, a small teacher certification program was added to the liberal arts division. By 1969 the teacher certification program had grown into one of the largest academic departments on the campus. During 2012-13, the Regents of the University of Michigan authorized the addition of the Department of Health and Human Services (HHS), and the creation of the College of Education, Health, and Human Services (CEHHS).

Undergraduate Degree Programs

At the College of Education, Health, and Human Services (CEHHS), our undergraduate programs help develop the skills and experiences to both transform your life and make a difference in your community. With a wide variety of undergraduate programs including, Bachelor of Arts, Bachelor of Science, Bachelor of General Studies, minors, and certificates. Whether working in health and human services programs such as Public Health and Child Life, or focused on education with degrees such as Instructional Technology, Children and Families, or teacher certification, students have the opportunity to select the ways in which they hope to improve their world.

For a listing of undergraduate offerings and opportunities, see our Undergraduate Programs page (https://umdearborn.edu/cehhs/undergraduate-programs/areas-study).

Details regarding any of the programs can be found in later sections of this Undergraduate Catalog.

Admission to the College of Education, Health, and Human Services

Come join the College of Education, Health, and Human Services, and be a part of transforming our region, community, and world. Whether you are just starting your undergraduate experience, or are transferring to join us, contact a CEHHS advisor for a prospective student appointment (https://umdearborn.edu/cehhs-office-student-success/academic-advising/undergraduate-advising), schedule a visit, and make a difference at CEHHS.

- Admission of Freshman Students (https://umdearborn.edu/admissions/undergraduate/incoming-freshmen)
- Admission of Transfer Students (https://umdearborn.edu/admissions/undergraduate/transfer-students)
- Admission of Post-Degree Students (https://umdearborn.edu/cehhs/professional-development-training/post-degree-certification)
Office of Student Success
The Office of Student Success for the College of Education, Health, and Human Services is located in 262 FCS. All matters relating to CEHHS student needs including academic advising, pre-health professions advising, field placement, teacher certification, and student records and forms are handled here. To schedule an advising appointment or for more information, the Office of Student Success can be reached at 313-593-5090.

Academic Advising
The College has professional Academic Advisors that specialize in CEHHS programs and can help students navigate their coursework and requirements from beginning to end. Students are encouraged to meet with an Academic Advisor at least once a semester to support student success and progress.

Pre-Health Professions Advising
While you are at UM-Dearborn, start learning about your health professions of interest; find out ways to help your fellow humans and animals and begin to develop your core competencies (personal and professional skills) needed to be a health professional in the future.

Many health professions require further education after you graduate. At UM-Dearborn, you will obtain a strong liberal arts and science education to prepare you for the competitive graduate programs in these health professions.

CEHHS offers specific advising on pre-requisites and application processes regarding the pursuit of health professions programs.

Teacher Certification
Field placements allow for each learner to build skills, knowledge, and confidence in his/her own pathway toward becoming a professional educator in real world placements. All required clearances, paperwork, and placements for field assignments are handled within the CEHHS Office of Student Success.

Department of Education
Education is not one career; it is many. Individuals specializing in education are qualified to pursue a wide variety of attractive and rewarding professions including teaching, corporate training, recreation, social service, and childcare. Wherever there is a need for people specifically prepared to teach others, there is a need for individuals with a background in education.

Still, most college graduates seeking a career in education elect to become classroom teachers. Teaching offers a wide choice of opportunities to work with persons of different age levels in a variety of specialized fields. It is a satisfying career for those who like to inspire growth in others and continue their own development.

Students admitted to any of the education programs offered at UM-Dearborn are provided with an academic and professional background suited to the challenges of education in a multicultural society. For further information, please visit the College of Education, Health, and Human Services website at http://umdearborn.edu/cehhs/.

Accreditation
The University of Michigan-Dearborn Teacher Certification program is designed to produce graduates who are knowledgeable in their content areas and their use of pedagogy with diverse learners and who are prepared to become caring and reflective professionals. The Michigan Department of Education approval enables the College to offer programs and make recommendations resulting in state-issued certification of teachers and administrators. Additionally, certification is accredited by the Teacher Education Accreditation Council (TEAC), a subsidiary of the Council for the Accreditation of Educator Preparation (CAEP). This accreditation certifies that the program has provided evidence that it adheres to TEAC’s quality principles. The Early Childhood Education Center is accredited by the National Association for the Education of Young Children (NAEYC).

Department of Health and Human Services
The Department of Health and Human Services (HHS) prepares leaders, professionals, and scholars to improve the health and welfare of persons and communities in local, national, and global settings. HHS provides an innovative academic environment for students interested in improving the lives and health of vulnerable populations. HHS faculty enhance student learning by connecting classroom instruction with ongoing intervention research, meaningful field experiences and community outreach efforts. Students complete a rigorous interdisciplinary program of study and master valuable professional skills. HHS students are well prepared to launch their careers or pursue additional graduate training to help solve pressing problems and deliver exceptional health and human services.

Course Offerings
Courses offered by the College of Education, Health, and Human Services are numbered following the general course numbering system. Courses numbered 100–299 are lower-division courses. Courses numbered 300–499 are undergraduate upper-division courses. Courses numbered 500 and above are graduate courses.

Each education course also carries an alphabetical letter designation. This designation reflects the course’s location in the subject-matter classification system used by the College of Education, Health, and Human Services.

<table>
<thead>
<tr>
<th>Letter Designation</th>
<th>Subject Matter Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE</td>
<td>Community Health Education</td>
</tr>
<tr>
<td>CLS</td>
<td>Child Life</td>
</tr>
<tr>
<td>EDA</td>
<td>Theoretical Foundations</td>
</tr>
<tr>
<td>EDB</td>
<td>Administration/Issues</td>
</tr>
<tr>
<td>EDC</td>
<td>Psychological Foundations</td>
</tr>
<tr>
<td>EDD</td>
<td>Curriculum and Instruction</td>
</tr>
<tr>
<td>EDF</td>
<td>Health and Physical Education</td>
</tr>
<tr>
<td>EDK</td>
<td>Research and Independent Study</td>
</tr>
<tr>
<td>EDM</td>
<td>Multicultural/Community Education</td>
</tr>
<tr>
<td>EDN</td>
<td>Special Education</td>
</tr>
<tr>
<td>EDT</td>
<td>Education Technology</td>
</tr>
</tbody>
</table>
EXPS  Exploratory Studies
HHS  Health and Human Studies
HIT  Health Information Technology
HPS  Health Policy Studies
HSED  Human Services Education
LIBR  Library Science
PDED  Professional Education
PHE  Public Health

**Majors**
- Child Life (p. 174)
- Community Health Education (p. 176)
- Educational Studies (p. 179)
- Elementary Education Program (p. 180)

  Majors Offered:
  - Early Childhood (p. 177)
  - Language Arts (p. 186)
  - Mathematics Studies (p. 187)
  - Reading (p. 188)
  - Science Studies (p. 189)
  - Social Studies (p. 190)
  - Special Education (p. 190)

  Minors Offered:
  - English as a Second Language (p. 185)
  - Language Arts (p. 186)
  - Mathematics Studies (p. 187)
  - Reading (p. 188)
  - Science Studies (p. 189)
  - General Studies (Children and Families) (p. 192)
  - Health Policy Studies (p. 194)
  - Instructional Technology (p. 198)
  - Public Health (p. 203)
  - Secondary Education Program (p. 207)

**Minors**
- Health Policy Studies (p. 197)
- Public Health (p. 203)

**Certificates**
- Addiction Studies (p. 173)
- Behavioral Analysis and Mental Health (p. 174)
- Child Life Assistant (http://catalog.umd.umich.edu/undergraduate/college-education-health-human-services/child-life-assistant)
- K-8 STEM2 Teaching (p. 199)
- Pre-Professional Health Studies (p. 203)
- Social Services Technician (http://catalog.umd.umich.edu/undergraduate/college-education-health-human-services/social-services-technician)
- STEM2: Multidisciplinary (p. 206)

**Post-Degree Programs**
- Certification Only Program (Elementary-COE, Secondary-COS (p. 200))
- Professional Education Certificate Program (PEC) (p. 200)
- Enhancement Program (EP) (p. 200)
- Endorsement Programs (Early Childhood (ZS) and English as a Second Language (NS) (p. 200)

**Administration**
Janine E. Janosky, PhD, Dean
Laura Reynolds, PhD, Associate Dean
Paul Bielich, MLS, Instructional Learning Manager
Monique Davis, Assistant to the Dean
Becky Dresselhouse-Nauss, BA, Senior Budget Analyst
Judy Garfield, Administrative Assistant, Department of Education
Sharon Harris, Administrative Assistant, Department of Health and Human Services
Donna Kerry, Certification and Field Officer
Jonathan Larson, MA, Academic Advisor
Claudia Lugo-Meeks, MEd, Instructional Learning Assistant
Elizabeth Morden, Customer Service Assistant
Julie Stahl, Administrative Assistant
Lindsey Tarrant, MA, Office of Student Success Supervisor/Academic Advisor
Carolyn Williams, Field Placement Coordinator

**Chairs and Directors**
Martha A. Adler, Director, Field Placement
Bonnie M. Beyer, Co-Director, EdD, EdS Program
Seong Bock Hong, Director, Early Childhood Program
Stein Brunvand, Director, Masters Degree Programs
Christopher J. Burke, Co-Director, EdD, EdS Program
Susan A. Everett, Chair, Education
Tahnee Prokopow, Director, Health Professions Advising, Pre Professional Health Advisor
Patricia A. Wren, Chair, Health and Human Services

**Professors Emeriti**
Cepuran, Joseph, PhD, Associate Professor Emeritus of Public Administration
Collin, Claudia, PhD, Assistant Professor Emerita of Education
Kettel, Raymond P., EdD, Associate Professor Emeritus of Education
Lazarus, Belinda, PhD, Professor Emerita of Education
Moyer, Richard, EdD, Professor Emeritus of Science Education
Otto, Charlotte, PhD, Professor Emerita of Chemistry and Education
Poster, John, PhD, Professor Emeritus of Public Administration and Education
Trepanier-Street, Mary, EdD, Professor Emerita of Education
Van Tiem, Darlene, PhD, Associate Professor Emerita of Education
Verhey, Roger, PhD, Professor Emeritus of Education

Faculty

Department of Education
Adler, Martha A., PhD, University of Michigan, Associate Professor of Education
Beyer, Bonnie M., EdD, Vanderbilt University, Professor of Education and Educational Administration
Bock Hong, Seong, EdD, University of Massachusetts Amherst, Professor of Education
Brunvand, Stein, PhD, University of Michigan, Associate Professor of Educational Technology
Burke, Christopher J., PhD, University of Illinois at Urbana-Champaign, Associate Professor of Science Education
DeFauw, Danielle, PhD, Oakland University, Associate Professor of Education
Duran, Mesut, PhD, Ohio University, Professor of Education
Everett, Susan A., PhD, University of Iowa, Professor of Science Education
Fossum, Paul, PhD, University of Minnesota, Professor of Education
Hill, David, PhD, University of Pittsburgh, Assistant Professor of Education
Hill, Kirsten, PhD, Michigan State University, Assistant Professor of Education
Killu, Kim, PhD, Ohio State University, Professor of Education
Luera, Gail R., PhD, University of Michigan, Associate Professor of Science Education
Reynolds, Laura, PhD, University of South Carolina, Associate Professor of Educational Psychology
Shaffer, LaShorage, PhD, University of Illinois at Urbana-Champaign, Assistant Professor of Education
Taylor, Julie, PhD, University of Cambridge, Professor of Education
Thomas-Brown, Karen, PhD, University of the West Indies, Associate Professor of Education

Department of Health and Human Services
Botoseneanu, Anda, PhD, University of Michigan, Assistant Professor of Health Policy Studies
Camp, Jessica, PhD, Wayne State University, Assistant Professor of Social Work
Janosky, Janine E., PhD, University of Pittsburgh, Professor of Health and Human Services
Laws, Terri, PhD, Rice University, Assistant Professor of Health and Human Services and African American Studies
Martin, Lisa, PhD, University of Michigan, Associate Professor of Health Policy Studies and Women's and Gender Studies
Roddy, Juliette K., PhD, Wayne State University, Professor of Health Economics
Sampson, Natalie, PhD, University of Michigan, Assistant Professor of Public Health
Wren, Patricia A., PhD, University of Michigan, Professor of Health and Human Services

Cooperating Faculty
Cengiz-Phippils, Nesrin, PhD, Associate Professor of Mathematics Education
Krebs, Angela, PhD, Associate Professor of Mathematics Education
Nesmith, Judy, MS, Senior Lecturer of Natural Sciences
Rathouz, Margaret, PhD, Associate Professor of Mathematics Education
Shelly, Michael, EdD, Lecturer of Mathematics Education

Early Childhood Education Center Staff
Seong Bock Hong, PhD, Faculty Director
Kathy Filipiak, MA, ZA, BX, Site Director
Marilyn Miller, BA, Early Childhood Educational Special Needs Liaison
LaShorage Shaffer, PhD, Special Needs Consultant
Emily Cooprider, Administrative Assistant
Danielle Camardese, BS, Teacher
Dana Fennessey, BA, Teacher
Caryn Finklestein, MA, Teacher
Charlene Hughes, BA, Teacher
Danielle Muehlenbein, BA, Teacher
Adriana Sanchez, BA, Teacher
Aubrey Smith, BA, Teacher
Catie Stone, MA, Teacher
Academic Procedures

- Change of Fees & Refunds (p. 42)
- Add/Drop/Withdrawal (p. 42)
- Class Standing (p. 43)
- Grades & Grading (p. 43)
- Graduation/Application for Diploma (p. 46)
- Registration Information (p. 46)
- Reporting of Grades (p. 46)
- Guidelines for Qualifying for In-State Tuition (p. 46)
- Transcripts (p. 51)
- Tuition Assessment & Fee Regulation (p. 51)
- University Academic Policies (http://catalog.umd.umich.edu/undergraduate/academic-policies)

Academic and Professional Standards

All matters in the College of Education, Health, and Human Services having to do with maintaining academic and professional standards can be found on the College’s Academic Advising (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising) page under Academic Policies.

Policy Changes

College of Education, Health, and Human Services policies change periodically. This occurs when teacher certification and/or graduation requirements are changed by the Michigan Department of Education, by the wider campus community, or by the College of Education, Health, and Human Services itself. It is the responsibility of the student to be aware of program requirements and for meeting appropriate standards. Students are encouraged to review current policies, graduation, and certification requirements with their advisors through required academic advising. For more information please see the College’s Academic Advising (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising) webpage (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising).

Special Facilities and Services

The College of Education, Health, and Human Services is recognized for its concentrated focus in several areas. This concentrated focus is designed to marshal available expertise at the institution in pursuit of regional needs and goals in several particular emphasis areas, including early childhood learning and instruction and inquiry-based science instruction.

- Curriculum Knowledge Center (CKC) (https://umdearborn.edu/cehhs/centers-institutes/curriculum-knowledge-center-ckc)
- Center for Disparity Solutions and Equity (https://umdearborn.edu/cehhs/centers-institutes/center-disparity-solutions-and-equity)
- Early Childhood Education Center (https://umdearborn.edu/cehhs/centers-institutes/eece)
- The Inquiry Institute (https://umdearborn.edu/cehhs/centers-institutes/inquiry-institute)

Addiction Studies Certificate

Educational programs in Addiction Studies prepare students to work in the field of substance abuse prevention and to counsel individuals and families with drug and/or alcohol problems. Professionals work as substance abuse counselors, peer support mentors, researchers, criminal justice professionals and clinical supervisors in both community and residential settings. Working with individuals with addictive disorders, the objectives are to eliminate dependence on alcohol or drugs and reduce criminal behaviors associated with illicit substances use. Specific proficiencies of the program include skills in assessment, interviewing, counseling and treatment planning within the context of diverse populations.

Goals and Outcomes

Program Goals: The Addiction Studies certificate program at the University of Michigan-Dearborn prepares individuals to support substance abuse prevention and to counsel individuals and families with drug or alcohol problems. This program will provide instruction in individual and group counseling skills, substance abuse identification methodologies, substance abuse treatment modalities, and substance abuse prevention strategies. Upon completion of this certificate program students will be prepared to take the addiction certificate exam. The learning outcomes for addiction studies certificate program correspond to the Four Domains, Twelve Core Functions, and Global Criteria for Certified Alcohol & Drug Counselor (CADC) defined by the Michigan Certification Board for Addiction Professionals (www.mcbap.com). Proficiency in these areas will prepare students to sit for the CADC exam. The coursework will enhance student experience in the field which is also a mandatory requirement for certification. Students who complete the Addiction Studies Certificate will learn how to practice the following in health care settings:

1. SCREENING: The process by which the client is determined appropriate and eligible for admission to a particular program.
2. INTAKE: The administrative and initial assessment procedures for admission to a program.
3. ORIENTATION: Describing to the client the following: general nature and goals of the program; rules governing client conduct and infractions that can lead to disciplinary action or discharge from the program; in a nonresidential program, the hours during which services are available; treatment costs to be borne by the client, if any; and client rights.
4. ASSESSMENT: The procedures by which a counselor/program identifies and evaluates an individual’s strengths, weaknesses problems and needs for the development of a treatment plan.
5. TREATMENT PLANNING: Process by which the counselor and the client identify and rank problems needing resolution; establish agreed upon immediate and long-term goals; and decide upon a treatment process and the resources to be utilized.
6. COUNSELING: (Individual, Group, and Significant Others): The utilization of special skills to assist individuals, families or groups in achieving objectives through exploration of a problem and its ramifications; examination of attitudes and feelings; consideration of alternative solutions; and decision-making.
7. CASE MANAGEMENT: Activities that bring services, agencies, resources or people together within a planned framework of action toward the achievement of established goals. It may involve liaison and collateral contacts.
8. CRISIS INTERVENTION: Those services that respond to an alcohol and/or other drug abuser’s needs during acute emotional and/or physical distress.
9. CLIENT EDUCATION: Provision of information to individuals and groups concerning alcohol and other drug abuse and the available services and resources.

10. REFERRAL: Identifying the needs of a client that cannot be met by the counselor or agency and assisting the client to utilize the support systems and community resources available.

11. REPORT AND RECORD KEEPING: Charting the results of the assessment and treatment plan, writing reports, progress notes, discharge summaries and other client related data.

12. CONSULTATION WITH OTHER PROFESSIONALS IN REGARD TO CLIENT TREATMENT/SERVICES: Relating with in-house staff or outside professionals to assure comprehensive, quality care for the client.

How to Apply

- For current students, please click here for application and admission information. (https://umdearborn.edu/cehhs/fileadmin/groups/10/cehhs_cms_files/academic_programs/applications/Declaration_of_Certificate_R_R.pdf)
- For new students not enrolled in a UM-Dearborn degree program, please click here for application and admission information. (https://umdearborn.edu/cehhs/fileadmin/groups/10/cehhs_cms_files/academic_programs/applications/Addiction_Studies/Addiction_Studies_Certificate_Program_Application.pdf)

Core Courses (12 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS 370</td>
<td>Medicine and Addiction I</td>
<td>3</td>
</tr>
<tr>
<td>HHS 371</td>
<td>Medicine and Addiction II</td>
<td>3</td>
</tr>
<tr>
<td>HHS 202</td>
<td>Mental Health Terminology</td>
<td>3</td>
</tr>
<tr>
<td>CHE 401</td>
<td>CHE Methods</td>
<td>3</td>
</tr>
<tr>
<td>or CRJ 200</td>
<td>Intro to Criminal Justice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 12

Electives (6 Cr. Hrs.)

Select from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 466</td>
<td>Drugs, Alcohol, and Society</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 467</td>
<td>Drugs, Crime, and Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 470</td>
<td>Current Issues in Crim Justice</td>
<td>3</td>
</tr>
<tr>
<td>SOC 465</td>
<td>Deviant Behavior/Soc Disorganz</td>
<td>3</td>
</tr>
<tr>
<td>SOC 476</td>
<td>Inside Out Prison Exchange</td>
<td>4</td>
</tr>
<tr>
<td>HHS 349</td>
<td>Sobriety Credit</td>
<td>1</td>
</tr>
<tr>
<td>HHS 360</td>
<td>Responsible Drug Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 6

Behavioral Analysis and Mental Health Certificate

Designed for students interested in working with individuals with intensive behavioral needs including those with Autism Spectrum Disorder. School systems, corporations, law enforcement agencies, and behavioral health providers hire Behavior Analysts to develop policies and procedures and work directly with individuals to improve educational and health outcomes and behavior challenges. Certificate coursework prepares students to sit for the Board Certified Assistant Behavioral Analyst examination: http://bacb.com

For more information: 313-593-5090

www.umdearborn.edu/cehhs

Certificate Program Goals

After completion of the certificate courses, the student will:

1. Describe and provide examples of the critical concepts and principles of Applied Behavior Analysis (ABA);
2. Describe and apply research methodology and measurement strategies used in the implementation and management of ABA;
3. Describe and apply the principles of ABA in relation to individuals with a variety of disabilities in a range of clinical, educational, pre-vocational/vocational, home and community settings;
4. Describe and apply behavioral assessment procedures, including identification of target behaviors, developing operational definitions, conducting functional behavior assessment/functional analysis;
5. Accurately graph, visually analyze and interpret behavioral data, including functional analysis data;
6. Describe ethical issues related to ABA service delivery with individuals with developmental disabilities and other mental health needs;
7. Describe and apply principles of experimental design including single-subject research methodology; and
8. Develop Behavior Intervention Plans based upon the results of functional analysis.

To view application forms and additional program information, please click here (https://umdearborn.edu/cehhs/professional-development-training/certificates/undergraduate-certificate-programs).

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 308</td>
<td>Intro Dev Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDC 306</td>
<td>Applied Behavior Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>EDC 307</td>
<td>Applied Behavior Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>or HHS 202</td>
<td>Mental Health Terminology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 303</td>
<td>Mntl Hlth in Med, Hu Srv, Lmn</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 13

Total 12 Credit Hours Required

Child Life

Students trained in the Child Life Specialist program are educated to help families and children thrive during life’s most stressful events. The profession’s emphasis on child development and healthy family coping skills promotes survival and persistence through play, education and self-expression. Child Life Specialists are called upon to provide support for children and their families facing a broad range of challenging experiences, particularly those related to healthcare and hospitalization. These highly skilled specialists work at the intersection
of education, medicine, and human services to meet the individualized needs of each child and family and to advocate on their behalf. Child Life Specialists are often needed in emergency departments, intensive care units, special needs camps, children’s hospitals, and in a range of specialty health and medical practices. University of Michigan-Dearborn graduates are fully prepared to become Certified Child’s Life Specialists (CCLS) as determined by the Association of Child Life Professionals.

Program Goals
The overall goals of the Child Life Specialist major are to prepare students to:

1. Prepare students with the knowledge and experience to improve the lives of children and families facing traumatic events
2. Address the unique and important cultural dimensions of the metropolitan Detroit area.

Learning Outcomes
The degree in Child Life Specialist will provide a framework for students to:

- Maintain professional and ethical standards of practice
- Promote professional relationships with families, providers and community workers
- Promote the understanding of the special needs of children and families among staff, students, volunteers and the community
- Obtain and use the relevant information regarding developmental and psychosocial factors (e.g., health care, family and child) to inform a plan of care
- Develop tailored interventions for children and their families that promote learning, mastery, coping, and normalization
- Develop an understanding of the unique problems and experiences face by particular subpopulations of children and families

Prerequisites
Prerequisites are ideally taken in the freshman and sophomore years when the student is fulfilling lower distribution requirements. These include:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>CHE 201</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych: Child Devel Practicum</td>
<td>1</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>Business Writing &amp; Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Pre-Calculus</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 103</td>
<td>Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>Anatomy and Physiology IIA</td>
<td>4</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 200</td>
<td>The Human Condition</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Core Requirements

Course List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>Business Writing &amp; Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Pre-Calculus</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 103</td>
<td>Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>Anatomy and Physiology IIA</td>
<td>4</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 200</td>
<td>The Human Condition</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS 200</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>CLS 401</td>
<td>Hospitalized Child</td>
<td>3</td>
</tr>
</tbody>
</table>
Community Health Education

The Community Health Education (CHE) major is a multidisciplinary program that incorporates coursework in health, biology, economics, psychology, sociology, and education. CHE students are trained to promote health and disease prevention by educating individuals and communities on behaviors and actions intended to improve health and well-being.

CHE offers a comprehensive education that incorporates the seven areas of responsibility for health education specialists as part of the Certified Health Education Specialist examination offered by the National Commission for Healthcare Education Credentialing. Graduates will be prepared to take the CHES certification examination and become credentialed as a health educator.

Program Goals
The overall goals of the CHE major are to prepare students to:

1. Promote health and wellness in community and organizational settings
2. Educate and provide information to health consumers that would improve health management and develop disease prevention programs
3. Be actively involved in researching, analyzing, and identifying ways to enhance healthcare services

Learning Outcomes
The degree in CHE will provide students with a comprehensive biopsychosocial framework on which to build the following job skills and abilities:

- Assess the needs of the people they serve
- Develop programs and events for teaching people and communities about health topics
- Understand marketing and communication for health education
- Evaluate and improve the effectiveness of health education programs and materials
- Help people find health services or information
- Manage health education programs and staff
- Collect and analyze data to better describe target audiences and improve programs
- Advocate for improved health resources and policies

Career Opportunities
Community health educators work in schools, hospitals, clinics, community organizations, non-profit agencies, companies, and governmental agencies. Career options include:

- Health Education and Planning
- Industrial Health Educator
- Patient Educator
- Public Health Education
- Corporate Wellness
- Youth and Senior Citizen Health Education

CHE students are required to complete 42-credit hours in core required courses exposing them to a variety of academic and professional disciplines.

Core Requirements (42-credit hours)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103</td>
<td>Anatomy and Physiology I</td>
<td>4</td>
</tr>
</tbody>
</table>
Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Requirements section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

CHE Internship

The CHE 402 internship course is designed to assist students in launching or advancing a career in community health education. Students will be expected to actively engage at the internship site and become an involved member of the seminar-based class. Class sessions will emphasize steps necessary for successfully entering and working within the community health setting. In addition, class sessions will focus on demonstration of health education skills and competencies, exploration of current health issues, understanding the resilient strength of diverse communities, accessing appropriate community resources, learning from peer experiences, and planning for a career as a health education practitioner. Internships are available in several Detroit area health and human service agencies. Student services will work with students for placement once junior status has been achieved.

Capstone Project

The ability to provide quality professional health education and health interventions to the intended target audience is critical for the effective health educator. It is also essential that practitioners are able to engage collaboratively with other health professionals as they design effective methods and materials. In the CHE 401 course, students will work collaboratively on educational presentations and material development, mass media and media advocacy, legislative action and involvement, community organization, and working with groups.

Early Childhood Education

The Early Childhood Education Program is designed for those intending to work with children, birth through eight years of age. Within the basic elementary education degree curriculum, it enables students to meet State requirements for a Michigan Provisional Elementary Teacher’s Certificate and the Early Childhood Endorsement (ZS) as well as to gain special competencies in the area of early childhood. It prepares individuals for careers in childcare centers, working with young children and their families, birth through kindergarten, as well as in the elementary school setting.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105</td>
<td>Anatomy and Physiology IIA</td>
<td>4</td>
</tr>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>CHE 201</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>Business Writing &amp; Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td>3</td>
</tr>
<tr>
<td>Philosophy (Any Philosophy Course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Pre-Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Calc I for Biology &amp; Life Sci</td>
<td>3</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

Target Audience: Students will be expected to actively engage at the internship site and become an involved member of the seminar-based class. Class sessions will emphasize steps necessary for successfully entering and working within the community health setting. In addition, class sessions will focus on demonstration of health education skills and competencies, exploration of current health issues, understanding the resilient strength of diverse communities, accessing appropriate community resources, learning from peer experiences, and planning for a career as a health education practitioner. Internships are available in several Detroit area health and human service agencies. Student services will work with students for placement once junior status has been achieved.

Capstone Project

The ability to provide quality professional health education and health interventions to the intended target audience is critical for the effective health educator. It is also essential that practitioners are able to engage collaboratively with other health professionals as they design effective methods and materials. In the CHE 401 course, students will work collaboratively on educational presentations and material development, mass media and media advocacy, legislative action and involvement, community organization, and working with groups.

Early Childhood Education

The Early Childhood Education Program is designed for those intending to work with children, birth through eight years of age. Within the basic elementary education degree curriculum, it enables students to meet State requirements for a Michigan Provisional Elementary Teacher’s Certificate and the Early Childhood Endorsement (ZS) as well as to gain special competencies in the area of early childhood. It prepares individuals for careers in childcare centers, working with young children and their families, birth through kindergarten, as well as in the elementary school setting.
grades 1-5. The program includes a concentrated study of the young child in infant/toddler, preschool, and early school contexts with extensive opportunities for field experiences in a variety of settings.

The requirements of the Early Childhood Education Program for undergraduates are as follows:

### Core Requirements

#### Early Childhood and Elementary Certification

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 282</td>
<td>History &amp; Civics Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 283</td>
<td>Geography &amp; Econ Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 220</td>
<td>Science in the Elem School</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 231</td>
<td>Inquiry: Physical Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry:Earth/Planet Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science</td>
<td>3</td>
</tr>
<tr>
<td>MATH 385</td>
<td>Math forElem Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 386</td>
<td>Math for Elem Teachers II</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Supplementary Content Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDF 450</td>
<td>Hlth, Nutr, &amp; PE/Clsrm Tchr</td>
<td>2</td>
</tr>
<tr>
<td>EXPS 250</td>
<td>Elem Ed Via &amp; Perf Arts</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 407</td>
<td>Inquiry-based Math and Science</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Pre-Professional Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 205</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych: Child Devel Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 57

### Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

### Foundational Studies

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

### Areas of Inquiry

- Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course

- Additional Science Course

- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

### Capstone

**Capstone**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 422</td>
<td>Lead,Advoc, Admin Early Ch Prg</td>
<td>3</td>
</tr>
<tr>
<td>EDC 414</td>
<td>Early Child Ed Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>EDC 442</td>
<td>EC: Fam/Sch/Comm Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>EDC 445</td>
<td>Develop Assess of Young Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 406</td>
<td>Teach Strategies Early Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 410</td>
<td>Practicum in Early Child Ed</td>
<td>1</td>
</tr>
<tr>
<td>EDD 411</td>
<td>Directed Tchg: Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>EDD 412</td>
<td>Seminar in Early Childhood Ed</td>
<td>2</td>
</tr>
<tr>
<td>EDC 431</td>
<td>Constructivist Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 440</td>
<td>The Child: Birth to Three</td>
<td>3</td>
</tr>
<tr>
<td>EDD 446</td>
<td>Intervention Strat EC Spec Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDC 446</td>
<td>Cog/Memory Dev in Children</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 34

### Major Notes:

1. With the approval of the Early Childhood Program Coordinator, a maximum of six credit hours of freshman and sophomore level transfer courses in early childhood will be considered for general credit toward the early childhood major.
2. An overall GPA of 2.75 or better is required for the major.
3. At least 15 semester hours in UM-Dearborn courses required for a major.
4. A grade of S is required in EDD 411.

### Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College
of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

7. The minimum number of semester hours required to graduate is 128.

8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details.

Early Childhood and Elementary Certification-Professional Sequence

The professional sequence of early childhood elementary education courses consists of:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundations</strong></td>
<td></td>
</tr>
<tr>
<td>EDA 340</td>
<td>Foundations of American Ed</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Psychology</strong></td>
<td></td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 412</td>
<td>Social Devl/Pos Guidance Techn</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Methodologies (See Note #1 below)</strong></td>
<td></td>
</tr>
<tr>
<td>EDD 452</td>
<td>Methods of Teaching Math K-8</td>
<td>3</td>
</tr>
<tr>
<td>EDD 468</td>
<td>Teach Read/Lang Arts- Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 467</td>
<td>Practicum in Reading Instruct ¹</td>
<td>1</td>
</tr>
<tr>
<td>EDD 471</td>
<td>Reading Instr: Models and Meth</td>
<td>3</td>
</tr>
<tr>
<td>EDD 485</td>
<td>Teach Science in the Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 495</td>
<td>Social Studies in the Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 491</td>
<td>Soc Std Elem Grades Practicum</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Professional Semester (See Notes #3 &amp; #5 below)</strong></td>
<td></td>
</tr>
<tr>
<td>EDD 435</td>
<td>Dir Teaching: Elementary Sch</td>
<td>11</td>
</tr>
<tr>
<td>EDD 437</td>
<td>Sem: Teaching Elementary Grds</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours: 38

¹ EDD 468 is a prerequisite for these courses.

Notes:

1. Enrollment in all the required EDD courses is open only to those who are officially admitted to and in good academic standing in the Teacher Certification Program at UM-Dearborn. See Four-Phase Checklist for more information.

2. Eligibility for directed teaching requires meeting all the requirements listed on the Four-Phase Checklist as well as submission of passing scores from the MTTC (Michigan Tests for Teacher Certification) subject area test: Elementary Education (#103).

3. Recommendations for other certification endorsements require passing scores from relevant MTTC subject area tests.

4. Minimum number of hours to graduate is 128 semester hours.

Educational Studies

The Bachelor of Arts in Educational Studies prepares students to understand the field of education without focusing on teacher certification requirements. This degree program will be beneficial to students who are seeking jobs in non-school settings and want to deepen their understanding about teaching and learning. For example, many community organizations and non-profits work closely with schools and the education of children and adolescents. Other students may be interested in a degree in education that will provide a strong background for a graduate degree in fields such as social work or public administration.

The undergraduate major of Educational Studies will provide a foundation for students in three areas: learners and learning, educational systems, and pedagogy. The major will NOT lead to teacher certification; it is designed to be applicable to anyone interested in learning more about how people learn and how to use the foundational knowledge of education in a variety of different work environments.

For those interested in PK-12 teacher certification, please refer to the Elementary (K-8) Certification program (https://umdearborn.edu/cehhs/cehhs_elem_cert) or the Secondary (6-12) Certification program (https://umdearborn.edu/cehhs/cehhs_secondary_cert).

Program Goals

B.A. in Educational Studies Graduates of the Bachelor of Arts in Educational Studies program will:

1. Acquire knowledge of educational systems
2. Understand how students develop and learn
3. Recognize and value diversity within an educational setting
4. Make informed decisions about learning based on assessment

Prerequisites (6 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 205</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solu</td>
<td>3</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

• Lecture/Lab Science Course
Available credits needed for graduation: 120

**Major (39 Cr. Hrs.)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>400</td>
<td>Adult Learning: Theory/Practice</td>
<td>3</td>
</tr>
<tr>
<td>431</td>
<td>Constructivist Education</td>
<td>3</td>
</tr>
<tr>
<td>446</td>
<td>Cog/Memory Dev in Children</td>
<td>3</td>
</tr>
<tr>
<td>456</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>420</td>
<td>Intro Teaching Learning Online</td>
<td>3</td>
</tr>
<tr>
<td>419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>460</td>
<td>Educating the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>439</td>
<td>Child Maltreatment and Trauma</td>
<td>3</td>
</tr>
<tr>
<td>447</td>
<td>Tchng English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>474</td>
<td>Environmental Education</td>
<td>3</td>
</tr>
<tr>
<td>414</td>
<td>Application of Instrl Design</td>
<td>3</td>
</tr>
<tr>
<td>400</td>
<td>STEM2 Teaching and Learning</td>
<td>3</td>
</tr>
</tbody>
</table>

**College of Education, Health, and Human Services Four-Phase Checklist**

1. Earn a bachelor’s degree from UM-Dearborn or another accredited institution with an overall GPA of 2.75; a minimum GPA of 2.75 in the major; a minimum GPA of 2.75 in the minor (if required/desired); and a minimum GPA of 2.75 in the Professional Studies Sequence. Irrespective of where the degree is earned, each candidate shall satisfactorily complete directed teaching and all required methods courses and practica at UM-Dearborn.

2. If acquiring both the bachelor’s degree and a teacher’s certificate from UM-Dearborn, the individual shall complete the degree with the appropriate number of semester hours depending on the program selected.

3. Comply with the Four-Phase Checklist described below.

4. Meet all Michigan Department of Education Teacher Certificate requirements including state mandated tests.

5. Satisfy the College faculty that the applicant possesses attributes that are necessary and desirable for successful teaching.

---

**Elementary Provisional Certificates**

The initial teaching certificate awarded the beginning elementary school teacher is the Michigan Elementary Provisional Teacher’s Certificate. This certificate is valid for teaching all subjects in kindergarten through fifth grade and in subject areas (majors and minors) if an endorsement on the certificate has been obtained in grades six through eight. One is also qualified to teach all subjects in self-contained classrooms through grade eight. The Provisional Teacher’s Certificate is valid for six years and may be renewed twice (for three years each time) provided that renewal conditions are met. Legislative or other state action may change these specifications. Therefore, students are advised to contact the College of Education, Health, and Human Services’ Office of Student Success, located in room 262 Fairlane Center South (FCS), to learn of the most recent policies.

**General Requirements for a Teacher’s Certificate**

In order to be awarded an elementary or secondary provisional teacher’s certificate, students at UM-Dearborn must be recommended for the certificate by the Governing Faculty of the College of Education, Health, and Human Services. The general procedure to be followed in obtaining such a recommendation is outlined below. It should be noted, however, that progression from one step to another is not automatic; students are expected to be individually responsible for understanding and meeting the requirements and provisions of the programs they pursue.

**Qualifying for a Provisional Teacher’s Certificate**

To qualify for certificate recommendation, an individual must fulfill the following requirements:

1. Earn a bachelor’s degree from UM-Dearborn or another accredited institution with an overall GPA of 2.75; a minimum GPA of 2.75 in the major; a minimum GPA of 2.75 in the minor (if required/desired); and a minimum GPA of 2.75 in the Professional Studies Sequence. Irrespective of where the degree is earned, each candidate shall satisfactorily complete directed teaching and all required methods courses and practica at UM-Dearborn.

2. If acquiring both the bachelor’s degree and a teacher’s certificate from UM-Dearborn, the individual shall complete the degree with the appropriate number of semester hours depending on the program selected.

3. Comply with the Four-Phase Checklist described below.

4. Meet all Michigan Department of Education Teacher Certificate requirements including state mandated tests.

5. Satisfy the College faculty that the applicant possesses attributes that are necessary and desirable for successful teaching.
continuing on to the next. Students are also responsible for meeting all program requirements for their selected degree as listed in Degree Works.

Phase One - Initial Admission to Education
All requirements listed below must be completed for progression to Phase Two:

1. Three types of students are considered for admission to the College of Education, Health, and Human Services at this entry level phase:
   • First time in any college (FTIAC) students - Campus admission standards for SAT, ACT, and high school Grade Point Average (GPA) are used in determining admission.
   • Transfer students - Campus admission standards are used for students transferring 54 or fewer semester hours. College of Education, Health, and Human Services admission standards (a minimum cumulative GPA of 2.75/4.0 scale) are used for students transferring 55 or more semester hours.
   • Degreed persons seeking certification only - College of Education, Health, and Human Services admission standards are used for individuals with a bachelor’s degree earned at a regionally accredited institution. The individual must have a cumulative GPA of 2.75 or higher in their major, minor, and overall to be admitted to the College of Education, Health, and Human Services and the Teacher Certification Program.

2. Live Scan fingerprinting and criminal background checks are required for work in school settings, which is a requirement for all teacher certification students. All background checks must be completed in the first semester of admission to the College of Education, Health, and Human Services. Live Scan fingerprinting is offered by IdentoGO/MorphoTrust USA by appointment only. Instruction/application forms are available at the CEHHS Office of Student Success, 262 FCS. To make an appointment for Live Scan fingerprinting, call 1-866-226-2952 or visit https://mi.ibtfingerprint.com/.

3. Proof of valid TB (tuberculosis) clearance must be submitted to the CEHHS Office of Student Success, 262 FCS, within the first semester enrolled.

4. Evidence of training for Infectious Diseases/Blood-borne Pathogens must be submitted to the CEHHS Office of Student Success, 262 FCS.

5. Completion of the Campus Composition Placement Test within the first semester enrolled (not required for students admitted to the post-degree certification only program).

Phase Two - Preparation for Admission to the Teacher Certification Program
All requirements listed below must be completed for progression to Phase Three:

1. Successful completion of
   • or transfer credit equivalent for COMP 105 (Writing & Rhetoric I), or waiver by Campus Composition Placement Test or university accepted high school Advanced Placement (AP) test score (not required for students admitted to the post-degree certification only program).
   • or transfer credit equivalent for EDA 205 (Introduction to Education).
   • EXPS 298 (Exploring Writing to Communicate, Learn and Teach).
   • COMP 227 (Intermediate Exposition & Argument) if prescribed by the results of the Campus Composition Placement Test (not required for students admitted to the post-degree certification only program).

2. Official record of meeting minimum scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics (if taken March 5, 2016 or later) are required.

3. Minimum of 55 earned credit hours, including transfer credit, or previously earned bachelor’s degree if applicable, with a minimum cumulative grade point average of 2.75.

4. Submission of completed Application for Admission to Teacher Certification Program (Phase III) form, which includes a moral turpitude statement, to the CEHHS Office of Student Success, 262 FCS.

5. Submission of Change of Program, Major, and/or Minor Petition form to officially declare certification major (and minor if required/desired) to the CEHHS Office of Student Success (not required for students admitted to the post-degree certification only program).

Phase Three - Admission to Teacher Certification Program
All requirements listed below must be completed for progression to Phase Four:

1. Successful completion of the appropriate MTTC Certification Tests listed below and official score reporting directly to the University of Michigan-Dearborn (institution code 29):
   • Elementary certification students must pass the MTTC Elementary Education Test (#103)
   • Secondary certification students must pass the MTTC tests in their major and minor.

2. Completion of at least one full semester (12 credit hours) of study at UM-Dearborn.

3. Completion of Professional Studies sequence of courses.

4. Minimum cumulative GPA of 2.75 on a 4.0 scale as well as a minimum GPA of 2.75 in the major(s), minor(s), and the Professional Studies sequence.

5. Attendance at a Student Teaching Application and Placement meeting and completion and submission of all forms distributed to the CEHHS Office of Student Success, 262 FCS.

6. Verification with the Office of Student Success that all clearance requirements are valid and up-to-date prior to student teaching.
   • TB clearance
   • CPR and First Aid Certification (Adult/Infant/Child)
   • Evaluation of Oral Expression
   • Criminal background checks will be reviewed through ICHAT by the Office of Student Success each semester.

Phase Four - Teacher Certification Program Completion
All requirements listed below must be completed for recommendation for a degree and/or a State of Michigan Provisional Teaching Certificate:

1. For undergraduate degree seeking students: Submission of completed Degree/Diploma application to the Enrollment Services Office. This application can be submitted online or printed and submitted in person, and can be found at https://umdearborn.edu/students/registration-records/graduation-commencement/applying-graduate-0.
Elementary certification students apply to graduate as a student in the College of Education, Health, and Human Services.

Secondary certification students apply to graduate as a student in the College of Arts, Sciences, and Letters.

2. Post-degree certification only and undergraduate secondary certification program students must submit a Program Completer Form to the CEHHS Office of Student Success, 262 FCS.

3. Successful completion of the chosen program, major(s), minor(s), professional studies sequence, including student teaching, and supplementary requirements with a minimum cumulative grade point average of 2.75 on a 4.0 scale, as well as minimum grade point average of 2.75 in the major(s), minor(s), and professional studies sequence.

4. Successful completion of any additional MTTC certification tests and official score reporting directly to the University of Michigan-Dearborn (Institution Code 29) for any additional endorsements sought. These scores must be reported to the University of Michigan-Dearborn College of Education, Health, and Human Services before recommendations are prepared for the state by the University of Michigan-Dearborn Certification Officer:

   • Additional content area major(s) or minor(s) for elementary certification students.
   • Additional content area major(s) or minor(s), beyond the minimum requirement, for secondary certification students.

Based on this record of achievement, a decision to recommend or not to recommend and/or certification will be made.

**Professional Semester/Directed Teaching (Student Teaching)**

Each student enrolled in a teacher certification program at UM-Dearborn, whether pursuing an elementary or a secondary provisional certificate, is expected to spend one full academic term exclusively in professional work. This period of time is called the "professional semester." Directed Teaching (student teaching) and its related seminar serve as the core for this particular term. This entails a full day’s teaching load and all school-related activities at a University-negotiated site. The professional semester for elementary certification students is as follows:

<table>
<thead>
<tr>
<th>Elementary Professional Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 435  Dir Teaching: Elementary Sch</td>
<td>12</td>
</tr>
<tr>
<td>EDD 437  Sem: Teaching Elementary Grds</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

Opportunities for directed teaching are available only in the University’s fall and winter terms. Students wishing to elect directed teaching in the fall term are required to attend an application meeting the preceding September and those desiring to elect it during the winter term are required to attend an application meeting the preceding March. Meeting dates, times, and locations will be posted on the Field Placement Office website and in the Fairlane Center South. Requirements for acceptance into the professional semester are outlined in the Four-Phase Checklist.

**Incompletes, Unsatisfactory Grades, and Withdrawals**

No student will be assigned to, or registered for, directed teaching with incomplete work in the Professional Sequence of courses. Moreover, once a student has been assigned to a directed teaching placement and then has had registration denied because of incomplete work, the student will be prohibited from receiving any future directed teaching assignment for that semester.

Any student, who has withdrawn from or received an unsatisfactory grade in directed teaching, whether through the action of a school district, the University, or by personal choice, will have a request for future placement carefully reviewed by the College’s Executive Committee. Reassignment to directed teaching is not guaranteed, nor is it an automatic process.

Students must file petitions for reassignment consideration.

**General Field Placement Policy**

Students in the teacher preparation program are assigned field placements, either as practicum students or as student teachers, in public or private schools. Field placement shall be made in accordance with the policies and procedures set forth by the College of Education, Health, and Human Services and in compliance with accreditation standards.

The student is expected to maintain a professional attitude in order to conform to the expectations of the placement school and the University. Appropriate academic preparation is required as outlined in the elementary and secondary programs of the College. Professional responsibilities during the Directed Teaching term are detailed in the "UM-Dearborn Directed Teaching Handbook" which is located on the CEHHS Field Placement website.

The public and private schools exercise the right to screen the University’s students. Acceptance or rejection of students is not controlled by the University. A placement school may reject a University student for several reasons, including a lack of placement positions in the school or a determination that the University student’s presence in the school or classroom may disrupt or interfere in some way with the educational process.

Currently there is no way in which the University can require the placement school to state specific reasons for rejection.

If a University student is repeatedly denied placement by the field schools, the College of Education, Health, and Human Services will recommend career counseling and terminate matriculation in the teacher certification program.

**Academic Program Requirements (Majors and Minors)**

Students entering this program are required to complete all core courses pre-professional and all requirements for any selected major. Academic majors and/or minors can be selected from the following fields: English as a Second Language (minor only), Language Arts, Mathematics, Integrated Science, Reading and Social Studies (major only). Students desiring to pursue an Early Childhood major with elementary certification should follow the program outlined under "Early Childhood Education." Students desiring to pursue the Learning Disabilities major with elementary certification should follow the program outlined under “Elementary Education Learning Disabilities Program.” Courses in the
major and/or minor may not be elected on a pass/fail basis. Courses that apply to the majors and minors are listed below under “Areas of Study for Majors and Minors.”

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Core Course Requirements**

Core courses are generally completed in the freshman and sophomore year.

Selections must be from courses numbered 100-200 unless otherwise stated.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 282</td>
<td>History &amp; Civics Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 283</td>
<td>Geography &amp; Econ Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 220</td>
<td>Science in the Elem School</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 231</td>
<td>Inquiry: Physical Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry:Earth/Planet Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 420</td>
<td>Science Capstone</td>
<td>3</td>
</tr>
<tr>
<td>MATH 385</td>
<td>Math for Elem Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 386</td>
<td>Math for Elem Teachers II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 387</td>
<td>Math for Elem Teachers III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 42

1 Two of the three NSCI core courses may be transferred to UM-Dearborn. A) an introductory physical science will satisfy NSCI 231, B) an introductory earth/planetary science will satisfy NSCI 232, and C) an introductory life science course will satisfy NSCI 233. BIOL 240/BIOL 242 and NSCI 120/NSCI 121 cannot be used for science credit.

**Pre-Professional Requirements**

Pre-professional courses are generally completed in the freshman and sophomore year.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 205</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych: Child Devel Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDF 450</td>
<td>Hlth, Nutr, &amp; PE/Clrm Tchrs</td>
<td>2</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 250</td>
<td>Elem Ed Vis &amp; Perf Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 15

**Professional Requirements**

The professional studies sequence of education courses consists of a minimum of 45 semester hours of credit. This concentration of study represents the core of professional preparation. At least two practica are required prior to student teaching. The semester hours are distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 340</td>
<td>Foundations of American Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 460</td>
<td>Educating the Exceptional Chld</td>
<td>3</td>
</tr>
<tr>
<td>EDC 412 or EDC 417</td>
<td>Mgmt of Classroom Behavior or Social Devl/Pos Guidance Techn</td>
<td>3</td>
</tr>
</tbody>
</table>

Methodologies (See Note #1 below)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 452</td>
<td>Methods of Teaching Math K-8</td>
<td>3</td>
</tr>
<tr>
<td>EDD 468</td>
<td>Teach Read/Lang Arts- Elem Gd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 467</td>
<td>Practicum in Reading Instruct</td>
<td>1</td>
</tr>
<tr>
<td>EDD 471</td>
<td>Reading Instr: Models and Meth</td>
<td>1</td>
</tr>
<tr>
<td>EDD 485</td>
<td>Teach Science in the Elem Gd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 491</td>
<td>Soc Std Elem Grades Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDD 495</td>
<td>Social Studies in the Elem Gd</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional Semester (See Notes #3 & #5 below)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 435</td>
<td>Dir Teaching: Elementary Sch</td>
<td>12</td>
</tr>
<tr>
<td>EDD 437</td>
<td>Sem: Teaching Elementary Grds</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours: 45
EDD 467 and EDD 471 are to be taken concurrently. Both require EDD 468 as a prerequisite.

Notes:
1. Enrollment in all the required EDD courses is open only to those who are officially admitted to and in good academic standing in the Teacher Certification Program at UM-Dearborn. See Four-Phase Checklist for more information.
2. Eligibility for directed teaching requires meeting all the requirements listed on the Four-Phase Checklist as well as submission of passing scores from the MTTC (Michigan Tests for Teacher Certification) subject area test: Elementary Education (#103).
3. Recommendations for other certification endorsements require passing scores from relevant MTTC subject area tests.
4. Minimum number of hours to graduate is 128 semester hours.

Areas of Study for Majors
- Early Childhood (p. 177)
- Language Arts (p. 186)
- Mathematics Studies (p. 187)
- Reading (p. 188)
- Science Studies (p. 189)
- Social Studies (p. 190)
- Special Education (p. 190)

Elementary School Certification Program
The program as outlined above meets the state’s teacher certification requirements at the time of this writing. However, changes by the University or the State may affect some program requirements. Therefore, students are strongly advised to inquire about possible changes by checking with their advisor in the College of Education, Health, and Human Services.

Areas of Study for Minor (Optional)
- English as a Second Language (p. 185)
- Language Arts (p. 186)
- Mathematics Studies (p. 187)
- Reading (p. 188)
- Science (p. 189) Studies (p. 189)

Early Childhood Education
The Early Childhood Education Program is designed for those intending to work with children, birth through eight years of age. Within the basic elementary education degree curriculum, it enables students to meet State requirements for a Michigan Provisional Elementary Teacher’s Certificate and the Early Childhood Endorsement (ZS) as well as to gain special competencies in the area of early childhood. It prepares individuals for careers in childcare centers, working with young children and their families, birth through kindergarten, as well as in the elementary grades 1-5. The program includes a concentrated study of the young child in infant/toddler, preschool, and early school contexts with extensive opportunities for field experiences in a variety of settings.

The requirements of the Early Childhood Education Program for undergraduates are as follows:

<table>
<thead>
<tr>
<th>Core Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early Childhood and Elementary Certification</strong></td>
</tr>
<tr>
<td><strong>Code</strong></td>
</tr>
<tr>
<td><strong>Required Courses</strong></td>
</tr>
<tr>
<td>COMP 105</td>
</tr>
<tr>
<td>EXPS 298</td>
</tr>
<tr>
<td>LIBR 465</td>
</tr>
<tr>
<td>LING 280</td>
</tr>
<tr>
<td>EXPS 282</td>
</tr>
<tr>
<td>EXPS 283</td>
</tr>
<tr>
<td>EXPS 220</td>
</tr>
<tr>
<td>NSCI 231</td>
</tr>
<tr>
<td>NSCI 232</td>
</tr>
<tr>
<td>NSCI 233</td>
</tr>
<tr>
<td>MATH 385</td>
</tr>
<tr>
<td>MATH 386</td>
</tr>
<tr>
<td><strong>Supplementary Content Requirements</strong></td>
</tr>
<tr>
<td>EDA 419</td>
</tr>
<tr>
<td>EDF 450</td>
</tr>
<tr>
<td>EXPS 250</td>
</tr>
<tr>
<td>EXPS 407</td>
</tr>
<tr>
<td><strong>Pre-Professional Studies</strong></td>
</tr>
<tr>
<td>EDA 205</td>
</tr>
<tr>
<td>EDC 240</td>
</tr>
<tr>
<td>EDC 241</td>
</tr>
<tr>
<td>EDT 211</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Program Notes:

Major Notes:

1. With the approval of the Early Childhood Program Coordinator, a maximum of six credit hours of freshman and sophomore level transfer courses in early childhood will be considered for general credit toward the early childhood major.

2. An overall GPA of 2.75 or better is required for the major.

3. At least 15 semester hours in UM-Dearborn courses required for a major.

4. A grade of S is required in EDD 411.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.

2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.

3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.

4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.

5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

7. The minimum number of semester hours required to graduate is 128.

8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details.

Early Childhood Major Requirements

A minimum of 34 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 422</td>
<td>Lead, Advoc, Admin Early Ch Prg</td>
<td>3</td>
</tr>
<tr>
<td>EDC 414</td>
<td>Early Child Ed Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>EDC 442</td>
<td>EC: Fam/Sch/Comm Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>EDC 445</td>
<td>Develop Assess of Young Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 406</td>
<td>Teach Strategies Early Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 410</td>
<td>Practicum in Early Child Ed</td>
<td>1</td>
</tr>
<tr>
<td>EDD 411</td>
<td>Directed Tchg: Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>EDD 412</td>
<td>Seminar in Early Childhood Ed</td>
<td>2</td>
</tr>
<tr>
<td>EDC 431</td>
<td>Constructivist Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 440</td>
<td>The Child: Birth to Three</td>
<td>3</td>
</tr>
<tr>
<td>EDC 446</td>
<td>Intervention Strat EC Spec Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDC 446</td>
<td>Cog/Memory Dev in Children</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 34

Major Notes:

1. Enrollment in all the required EDD courses is open only to those who are officially admitted to and in good academic standing in the Teacher Certification Program at UM-Dearborn. See Four-Phase Checklist for more information.

2. Eligibility for directed teaching requires meeting all the requirements listed on the Four-Phase Checklist as well as submission of passing scores from the MTTC (Michigan Tests for Teacher Certification) subject area test: Elementary Education (#103).

3. Recommendations for other certification endorsements require passing scores from relevant MTTC subject area tests.

4. Minimum number of hours to graduate is 128 semester hours.

English as a Second Language Minor Only

Students must demonstrate experience in learning a modern second language or coursework in a modern second language or permission of Program Coordinator or take one semester course in a modern language.
A minimum of 21 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 447</td>
<td>Tchg English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchg Engl Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>EDC 455</td>
<td>Assmt: Sec Lang Learning K-12</td>
<td>2</td>
</tr>
<tr>
<td>ENGL/LING 474</td>
<td>Second Lang Acquisition: Engl</td>
<td>3</td>
</tr>
<tr>
<td>LING 480</td>
<td>Concepts in Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING 476</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH/LING 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>EDC 490</td>
<td>Litrcy Instr &amp; Assess for Els</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 484</td>
<td>World Englishes</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 21

**Minor Notes:**

1. EDD 447/EDD 448 is a pre-requisite for EDC 455/EDC 555  
2. LING 480 or LING 280 is a pre-requisite for LING 461/ENGL 461, LING 561/ENGL 561, LING 482/ENGL 482, LING 582/ENGL 582, LING 484/ENGL 484, LING 584/ENGL 584, LING 474/LING 574 and LING 476/LING 576.

**Program Notes:**

1. A minimum GPA of 2.75 is required for a minor.  
2. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.  
3. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.  
4. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.  
5. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

**Language Arts**

Please refer to Elementary School Certification Program for additional degree requirements.

**Major Requirements**

A minimum of 37 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDC 476</td>
<td>Literacy Assessmt for Instr</td>
<td>4</td>
</tr>
<tr>
<td>EDD 447</td>
<td>Tchg English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchg Engl Secnd Lang (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 475</td>
<td>Issues Lit Child/Yng People</td>
<td>3</td>
</tr>
<tr>
<td>LING 475</td>
<td>Lang Diversity: Arab Amer Comm</td>
<td>3</td>
</tr>
<tr>
<td>LING 477</td>
<td>African American English</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 223</td>
<td>Intro to Creative Writing</td>
<td></td>
</tr>
<tr>
<td>ENGL 327</td>
<td>Advanced Exposition</td>
<td></td>
</tr>
<tr>
<td>ENGL 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>LING 475</td>
<td>Lang Diversity: Arab Amer Comm</td>
<td></td>
</tr>
<tr>
<td>LING 477</td>
<td>African American English</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 38

**Program Notes:**

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.  
2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.  
3. Minimum GPA's are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.  
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.  
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.  
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.  
7. The minimum number of semester hours required to graduate is 128.  
8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.  
9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details

**Minor Requirements**

A minimum of 24 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH/LING 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>EDC 490</td>
<td>Litrcy Instr &amp; Assess for Els</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 484</td>
<td>World Englishes</td>
<td></td>
</tr>
</tbody>
</table>
A minimum of 30 semester hours from the following:

**Major Requirements**

Please refer to Elementary School Certification Program for additional degree requirements.

### Mathematics

**Program Notes:**

1. A minimum GPA of 2.75 is required for a minor.
2. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.
3. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
4. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.
5. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn, College of Education, Health, and Human Services. No hand carried scores will be accepted.

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDD 447</td>
<td>Tchng English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchng Engl Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 475</td>
<td>Issues Lit Child/Yng People</td>
<td>3</td>
</tr>
<tr>
<td>LIGN 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LIGN 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

25

1. Core courses included in minor semester hours.
2. Practicum is optional in the minor.

**Recommended Electives**

Select 4-6 credit hours:

- MATH 113
- MATH 104
- MATH 387
- MATH 386
- MATH 385
- MATH 444
- MATH 443
- MATH 442
- MATH 441
- COMP 105
- STAT 263

**Total Credit Hours**

30-32

---

**Minor Requirements**

A minimum of 20 semester hours from the following:

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Calc I for Biology &amp; Life Sci</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 385</td>
<td>Math for Elemen Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 386</td>
<td>Math for Elem Teachers II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 387</td>
<td>Math for Elem Teachers III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 442</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 443</td>
<td>Algebra for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 444</td>
<td>Data Anlsys,Prob&amp;Stat forTchrs</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended Electives**

Select 4-6 credit hours:

- MATH 104
- MATH 105
- MATH 385
- MATH 386
- MATH 387

---
A minimum of 32 semester hours from the following:

**Major Requirements**

A minimum of 32 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 442</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 443</td>
<td>Algebra for Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended Electives**

Select 2-3 credit hours: 2-3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 131</td>
<td>Conceptual Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 300</td>
<td>Math Lang Proof &amp; Struct</td>
<td></td>
</tr>
<tr>
<td>MATH 297</td>
<td>The Nature of Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 391</td>
<td>Topics in Mathematics Education</td>
<td></td>
</tr>
<tr>
<td>MATH 444</td>
<td>Data Anlsys,Prob&amp;Stat for Tchrs</td>
<td></td>
</tr>
<tr>
<td>MATH 445</td>
<td>Number &amp; Prop'l Rsng for Tchrs</td>
<td></td>
</tr>
<tr>
<td>MATH 446</td>
<td>Discrete Math/Modeling for Tch</td>
<td></td>
</tr>
<tr>
<td>MATH 447</td>
<td>Micro in Math for Teachers</td>
<td></td>
</tr>
<tr>
<td>STAT 263</td>
<td>Introduction to Statistics</td>
<td></td>
</tr>
</tbody>
</table>

or other courses approved by Academic Advisor

Total Credit Hours 21-22

**Program Notes:**

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor 6 or more semester hours must be at the 300 level or above.
3. MATH 104 and MATH 113 are the recommended pre-calculus and calculus courses for elementary education students with a mathematics major or minor.
4. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.
5. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
6. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.
7. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

## Reading

Please refer to Elementary School Certification Program for additional degree requirements.

**Minor Requirements**

A minimum of 20 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 448</td>
<td>Pract: Tchng Engl Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>EDD 469</td>
<td>Reading in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 460</td>
<td>Capstone: Trnds &amp; Iss Literacy</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 470</td>
<td>Literature for Young People</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 475</td>
<td>Issues Lit Child/Yng People</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 32

**Program Notes:**

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA's are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. The minimum number of semester hours required to graduate is 128.
8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details
1. A minimum GPA of 2.75 is required for a minor.

2. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.

3. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

4. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.

5. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

Science Studies

Please refer to Elementary School Certification Program for additional degree requirements.

Major Requirements

A minimum of 36 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>EXPS 220</td>
<td>Science in the Elem School</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 231</td>
<td>Inquiry: Physical Science (see Note #3 below)</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry: Earth/Planet Science (see Note #3 below)</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science (see Note #3 below)</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 420</td>
<td>Science Capstone</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 332</td>
<td>Inquiry: Mich Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 333</td>
<td>Inquiry: PBL in Life Science</td>
<td>3</td>
</tr>
</tbody>
</table>

| Physical Science | 3-4 |
| Earth/Planetary Science | 3-4 |
| Life Science | 3-4 |

Total Credit Hours: 33-36

1. BIOL 240/BIOL 242 and NSCI 120/NSCI 121 cannot be used for science credit.

Major Notes:

1. 15 semester hours required at UM-Dearborn.
2. 6 semester hours required in courses at the 300 level or above.
3. Transfer students: 2 natural science courses may be transferred to UM-Dearborn:
   a) an introductory physical science will satisfy NSCI 231;
   b) an introductory earth/planetary science will satisfy NSCI 232;
   c) an introductory life science course will satisfy NSCI 233.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.

2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.

3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.

4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRED alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.

5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

7. The minimum number of semester hours required to graduate is 128.

8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details.

Minor Requirements

A minimum of 24 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>EXPS 220</td>
<td>Science in the Elem School</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 231</td>
<td>Inquiry: Physical Science (see Note #2 below)</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry: Earth/Planet Science (see Note #2 below)</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science (see Note #2 below)</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 420</td>
<td>Science Capstone</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 332</td>
<td>Inquiry: Mich Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 333</td>
<td>Inquiry: PBL in Life Science</td>
<td>3</td>
</tr>
</tbody>
</table>

| Physical Science | 3-4 |
| Earth/Planetary Science | 3-4 |
| Life Science | 3-4 |

Total Credit Hours: 24

1. NSCI 120/NSCI 121 and / cannot be used for science credit.

Program Notes:

1. A minimum GPA of 2.75 is required for a minor.

2. Transfer students: 2 natural science courses may be transferred to UM-Dearborn:
   a) an introductory physical science will satisfy NSCI 231;
   b) an introductory earth/planetary science will satisfy NSCI 232;
   c) an introductory life science course will satisfy NSCI 233.

3. Astronomy satisfies Earth/Planetary Science requirement.

4. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College
of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.

5. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

6. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.

7. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

Social Studies

Please refer to Elementary School Certification Program for additional degree requirements.

Major Requirements

A minimum of 36 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXPS 282</td>
<td>History &amp; Civics Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 283</td>
<td>Geography &amp; Econ Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td>3</td>
</tr>
<tr>
<td>or POL 471</td>
<td>American Foreign Policy I</td>
<td>3</td>
</tr>
<tr>
<td>or POL 472</td>
<td>American Foreign Policy II</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 206</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>300 Level GEOG Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Introductory Economics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

Major Notes:

1. 12 semester hours required at UM-Dearborn.
2. 9 semester hours at 300 level or above required.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. The minimum number of semester hours required to graduate is 128.
8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details.

Special Education

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 282</td>
<td>History &amp; Civics Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 283</td>
<td>Geography &amp; Econ Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 220</td>
<td>Science in the Elem School</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 231</td>
<td>Inquiry: Physical Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry:Earth/Planet Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science</td>
<td>3</td>
</tr>
<tr>
<td>MATH 385</td>
<td>Math for Elem Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 386</td>
<td>Math for Elem Teachers II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 387</td>
<td>Math for Elem Teachers III</td>
<td>3</td>
</tr>
<tr>
<td>Supplementary Content Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDF 450</td>
<td>Hlth, Nutr, &amp; PE/Clsrm Tchrs</td>
<td>2</td>
</tr>
<tr>
<td>EXPS 250</td>
<td>Elem Ed Vis &amp; Perf Arts</td>
<td>3</td>
</tr>
<tr>
<td>Pre-Professional Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDA 205</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych: Child Devel Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 3 credit hours from DDC Upper Level Writing (EDC 442, EXPS 420 or ENGL 327 recommended)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the
DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Major Requirements**

A minimum of 30 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 401</td>
<td>Introduction to LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 403</td>
<td>Assessment of the Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDN 404</td>
<td>Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDN 401</td>
<td>Strategies for LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 402</td>
<td>Socio-vocational Transitions</td>
<td>3</td>
</tr>
<tr>
<td>PDED 405</td>
<td>Sp Ed Legisln and Litigation</td>
<td>3</td>
</tr>
<tr>
<td>EDC 417</td>
<td>Mgmt of Classroom Behavior</td>
<td>3</td>
</tr>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDT 430</td>
<td>Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDD 413</td>
<td>LD Elem Directed Teaching</td>
<td>2</td>
</tr>
<tr>
<td>EDD 420</td>
<td>LD Sec Directed Teaching</td>
<td>2</td>
</tr>
<tr>
<td>EDN 408</td>
<td>LD Directed Teaching Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credit Hours 31

**Program Notes:**

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. The minimum number of semester hours required to graduate is 128.
8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details.

**Professional Requirements**

The professional sequence of education courses consists of a minimum of 42 semester hours of credit. This concentration of study represents the core of your professional preparation. At least two practicums are required prior to student teaching. The semester hours are distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 340</td>
<td>Foundations of American Ed (Multicultural Education)</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td>3</td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 460</td>
<td>Educating the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 452</td>
<td>Methods of Teaching Math K-8</td>
<td>3</td>
</tr>
<tr>
<td>EDD 468</td>
<td>Teach Read/Lang Arts- Elem Grd ¹</td>
<td>3</td>
</tr>
<tr>
<td>EDD 467</td>
<td>Practicum in Reading Instruct</td>
<td>1</td>
</tr>
<tr>
<td>EDD 471</td>
<td>Reading Instr: Models and Meth</td>
<td>3</td>
</tr>
<tr>
<td>EDD 485</td>
<td>Teach Science in the Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 495</td>
<td>Social Studies in the Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 491</td>
<td>Soc Std Elem Grades Practicum</td>
<td>1</td>
</tr>
</tbody>
</table>

**Professional Semester**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 435</td>
<td>Dir Teaching: Elementary Sch</td>
<td>12</td>
</tr>
<tr>
<td>EDD 437</td>
<td>Sem: Teaching Elementary Grds</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours 42

¹ EDD 467 and EDD 471 are to be taken concurrently. Both require EDD 468 as a prerequisite.

**Notes:**

1. Enrollment in all the required EDD courses is open only to those who are officially admitted to and in good academic standing in the Teacher
Certification Program at UM-Dearborn. See Four-Phase Checklist for more information.

2. Eligibility for directed teaching requires meeting all the requirements listed on the Four-Phase Checklist as well as submission of passing scores from the MTTC (Michigan Tests for Teacher Certification) subject area test: Elementary Education (#103).

3. Recommendations for other certification endorsements require passing scores from relevant MTTC subject area tests.

4. Minimum number of hours to graduate is 128 semester hours.

English as a Second Language

Minor Only

Students must demonstrate experience in learning a modern second language or coursework in a modern second language or permission of Program Coordinator or take one semester course in a modern language.

A minimum of 21 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDD 447</td>
<td>Tchng English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchng Engl Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>EDC 455</td>
<td>Assmt: Sec Lang Learning K-12</td>
<td>2</td>
</tr>
<tr>
<td>ENGL/LING 474</td>
<td>Second Lang Acquisition: Engl</td>
<td>3</td>
</tr>
<tr>
<td>LING 480</td>
<td>Concepts in Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING 476</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>Select two of the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ANTH/ Ling 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>EDC 490</td>
<td>Litrcy Instr &amp; Assess for Els</td>
<td></td>
</tr>
<tr>
<td>ENGL/ Ling 461</td>
<td>Modern English Grammar</td>
<td></td>
</tr>
<tr>
<td>ENGL/ Ling 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>ENGL/ Ling 484</td>
<td>World Englishes</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 21

Minor Notes:

1. EDD 447/EDD 448 is a pre-requisite for EDC 455/EDC 555
2. LING 480 or LING 280 is a pre-requisite for LING 461/ENGL 461, LING 561/ENGL 561, LING 482/ENGL 482, LING 582/ENGL 582, LING 484/ENGL 484, LING 584/ENGL 584, LING 474/LING 574 and LING 476/LING 576.

Program Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.
3. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

4. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.
5. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

General Studies

The College of Education, Health, and Human Services awards the Bachelor of General Studies degree (BGS) in the following program.

Children and Families BGS

The Children and Families Program is a Bachelor of General Studies degree. This program is a four-year degree program without elementary teaching certification, designed for students who wish to pursue careers in child care centers, teaching and administration, social service agencies or in other work with children and families. The 2+2 Children and Families BGS Program is designed to combine selected two-year community college associate degree programs with two years of coursework at the UM-Dearborn. The associate degrees eligible for this program must be covered by articulation agreements between the community college and the UM-Dearborn, College of Education, Health, and Human Services, or are accepted with permission of the Children and Families academic advisor.

UM-Dearborn students may be admitted to the Children and Families Program with a minimum grade point average of 2.5.

Coursework at Community College

Credits earned to complete designated community college associate degrees will be accepted for the UM-Dearborn BGS degree as lower-division credit (up to a maximum of 62 hours). Courses not applied toward meeting BGS distribution requirements or program prerequisites will be utilized as elective courses or general credit toward the Children and Families BGS degree. (Examples of the variety of community college associate degrees that could be appropriate for this 2+2 program are: Early Childhood Education and Care, and Family Support Services.)

Courses to be taken at UM-Dearborn

Students must complete Composition 227 (at UM-Dearborn).

The remaining coursework at UM-Dearborn (to total the required 58-60) will be elected from either lower- or upper-division courses. These can be used to complete core requirements, to meet specific prerequisites, or to meet requirements and strengthen background in the Child Studies area.

To complete the program, students must have a 2.5 grade point average overall, 2.5 in Child Studies (Area I) and 2.5 in Behavioral Studies (Area II), and at least a 2.5 in the Elective area (Area III). A total of 120 credit hours is necessary to graduate.
Areas of Study
The student will elect courses in three areas of study, as follows:

<table>
<thead>
<tr>
<th>Area</th>
<th>Major</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Child Studies</td>
<td>31-40</td>
</tr>
<tr>
<td>II</td>
<td>Behavioral Science</td>
<td>18</td>
</tr>
<tr>
<td>III</td>
<td>Elective Area</td>
<td>12+</td>
</tr>
</tbody>
</table>

Elective Area selected with advisor approval from:
- Anthropology
- Business
- Communication
- Comp. Info. Science
- Education
- English
- French
- German
- Health Policy Studies
- Mathematics
- Natural Science
- Political Science
- Psychology
- Social Studies
- Sociology
- Spanish
- Women’s Studies

1. The student may select an alternative third area of study (i.e., one which is not listed above) if approved by an academic advisor.
2. If Education is selected as the Elective Area, the following courses may not be elected: EDD 452, EDD 467, EDD 468, EDD 471, EDD 485, and EDD 495.

Core Course Requirements for Children and Families BGS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 106</td>
<td>Writing &amp; Rhetoric II</td>
<td>3</td>
</tr>
<tr>
<td>COMP 227</td>
<td>Intermed Expo and Arg</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 250</td>
<td>Elem Ed Via &amp; Perf Arts</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 120</td>
<td>Matter, Energy, and Life I</td>
<td>4</td>
</tr>
<tr>
<td>NSCI 121</td>
<td>Matter, Energy, and Life II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 385</td>
<td>Math for Elemen Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 35

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

Capstone
- Capstone (GECE) – 3 Credits (p. 22)

Child Studies (Area I)
2.5 GPA required, 27 hours at 300+ at UM-Dearborn required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych: Child Devel Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDC 414</td>
<td>Early Child Ed Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>EDD 406</td>
<td>Teach Strategies Early Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 410</td>
<td>Practicum in Early Child Ed</td>
<td>1</td>
</tr>
<tr>
<td>EDD 412</td>
<td>Seminar in Early Childhood Ed</td>
<td>2</td>
</tr>
<tr>
<td>EDD 411</td>
<td>Directed Tchg: Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>or EDD 418</td>
<td>Children and Families Intern</td>
<td></td>
</tr>
<tr>
<td>EDC 442</td>
<td>EC: Fam/Sch/Comm Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>EDC 445</td>
<td>Develop Assess of Young Child</td>
<td>3</td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDB 422</td>
<td>Lead,Advoc, Admin Early Ch Prg</td>
<td>3</td>
</tr>
<tr>
<td>EDF 450</td>
<td>Hlth, Nutr, &amp; PE/Clrsm Tchrs</td>
<td>2</td>
</tr>
</tbody>
</table>

Electives
Select courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 412</td>
<td>Social Devl/Pos Guidnce Techn</td>
<td></td>
</tr>
<tr>
<td>EDC 431</td>
<td>Constructivist Education</td>
<td></td>
</tr>
<tr>
<td>EDC 446</td>
<td>Cog/Memory Dev in Children</td>
<td></td>
</tr>
<tr>
<td>EDD 446</td>
<td>Intervention Strat EC Spec Ed</td>
<td></td>
</tr>
<tr>
<td>EXPS 407</td>
<td>Inquiry-based Math and Science</td>
<td></td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 35-42

1. Waived if transfer credit is granted, if waived, EDC 440 must be elected in area II.
Behavioral Studies (Area II)
2.5 GPA required, 9 hours 300+ at UM-Dearborn required

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Course</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transfer students must take:</td>
<td></td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 440</td>
<td>The Child: Birth to Three</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One of the following is required unless a lower-division transfer course is approved by an academic advisor:</td>
<td>3</td>
</tr>
<tr>
<td>SOC 445</td>
<td>The Family</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or SOC 446</td>
<td>Marriage and Family Problems</td>
</tr>
<tr>
<td></td>
<td><strong>Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least one course from each of the following three disciplines is required:</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Anthropology:</td>
<td></td>
</tr>
<tr>
<td>ANTH 101</td>
<td>Introduction to Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 202</td>
<td>World Cultures</td>
<td></td>
</tr>
<tr>
<td>ANTH 315</td>
<td>Body Image and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 325</td>
<td>Anth of Health and Environment</td>
<td></td>
</tr>
<tr>
<td>ANTH 331</td>
<td>Human Evolution</td>
<td></td>
</tr>
<tr>
<td>ANTH 421</td>
<td>Education and Culture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Psychology:</td>
<td></td>
</tr>
<tr>
<td>PSYC 300</td>
<td>Life-Span Developmental Psych</td>
<td></td>
</tr>
<tr>
<td>PSYC 315</td>
<td>Personality Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 322</td>
<td>Psychology of Prejudice</td>
<td></td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Psyc of Interpersonal Relation</td>
<td></td>
</tr>
<tr>
<td>PSYC 375</td>
<td>Psychology of Language</td>
<td></td>
</tr>
<tr>
<td>PSYC 404</td>
<td>Parent-Child Relations</td>
<td></td>
</tr>
<tr>
<td>PSYC 405</td>
<td>Gender Roles</td>
<td></td>
</tr>
<tr>
<td>PSYC 418</td>
<td>Cognitive Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 442</td>
<td>Child Psychopathology</td>
<td></td>
</tr>
<tr>
<td>PSYC 450</td>
<td>Personality Theory</td>
<td></td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Learning and Memory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sociology:</td>
<td></td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td></td>
</tr>
<tr>
<td>SOC 350</td>
<td>Poverty and Inequality</td>
<td></td>
</tr>
<tr>
<td>SOC 382</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 403</td>
<td>Minority Groups</td>
<td></td>
</tr>
<tr>
<td>SOC 422</td>
<td>Structure of American Society</td>
<td></td>
</tr>
<tr>
<td>SOC 423</td>
<td>American Social Classes</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 18

Electives (Area III)
Select from the following list with approval of advisor. Community College Childcare courses transfer here.

- Anthropology
- Business
- Communication
- Education (highly recommended)
- English
- German
- Health Policy Studies
- Mathematics
- Natural Science
- Political Science
- Psychology
- Social Studies
- Sociology
- Spanish
- Women’s Studies

Note: Course numbers and offerings may have changed; please consult your faculty advisor regarding updated course numbers.

Health Policy Studies

The study of social factors and their relationship to the health care system has become increasingly important in recent decades. It is now widely accepted that understanding the social dimensions of health, illnesses, and the health care system is crucial for all health-related professionals and for informed consumers as well.

The Health Policy Studies (HPS) program provides future health professionals with a strong behavioral and social science orientation that also draws on resources in humanities, management, education and engineering. Students study important perspectives that broaden and deepen their understanding of health care and health systems. The objective is to provide students with analytic frames of reference, as well as research and evaluation approaches that illuminate issues and provide a sound basis for approaching problems in the health care delivery field. Students will explore the economics and politics of health care delivery, sociological perspectives on health, cross-cultural comparisons of health care systems, ethical considerations, computer applications, and practical work in aspects of the American health care and health policy systems.
Students participate in undergraduate coursework that prepares them for health-related work, strengthens their position for admission to graduate programs, and enhances professional socialization. This program is intended for students interested in health services administration, health policy and planning, and such medical professions as medicine, dentistry and nursing.

Health Policy Studies is also available as a minor and as an area of focus for the Bachelor of General Studies (BGS) and the Bachelor of Arts in Liberal Studies (LIBS).

**Joint Programs with Community College Degree in Allied Health and Nursing**

Students who have completed an Associate Degree program from an accredited community college in Nursing (RN) or Allied Health (including, inter alia, Health Information Technology, Health Services Manager, Medical Assistant, Pharmacy Technician, Physical Therapist Assistant, Radiography Technician, Respiratory Therapy Assistant, Surgical Technology, and Diagnostic Medical Sonographer), with an overall GPA of 2.5 or higher, may apply for admission to Health Policy Studies through the joint program. Students who have been accepted will be able to transfer up to 62 credit hours of their Associate’s Degree program toward an AB in Health Policy Studies.

Students transferring into HPS under the joint program will have to complete distribution requirements, including prerequisites to the major, major requirements and an HPS track, as set forth in the next sections. The transferred allied health and nursing courses may only be used for the HPS bachelor’s degree; that is, a student who comes to UM-Dearborn through the joint program, but subsequently changes majors from HPS will lose many of the 62 transferred credit hours, retaining only those course credits that would otherwise transfer to UM-Dearborn.

**Program Goals**

Upon completion of the HPS degree a student will demonstrate the ability to:

- Demonstrate knowledge of the organization of the U.S. health service delivery system
- Understand major concepts of health care administration and financing
- Demonstrate understanding of the government organizations and policy processes involved in health policy
- Show knowledge of determinants of individual and population health and risk factors for illness, health behavior and its impact on the health care system
- Understand the ethical implications and resource distribution impacts of health policy

The HPS major includes 31 credit hours of core courses, 31 credit hours in major courses, 43 elective credits, plus 15 credit hours in one of seven (7) specialized tracks including: Health Planning, Health Behavior and Health Education, Human Resources, Finances, Information Systems, Marketing, or an Individualized Track.

A minor in HPS may be obtained by taking 15 credit hours from the HPS required core courses.

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GEBS) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

**Health Policy Studies Core**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 106</td>
<td>Writing &amp; Rhetoric II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>HHS 250</td>
<td>Intro to Environmental Health</td>
<td>3</td>
</tr>
<tr>
<td>HHS 350</td>
<td>Comm Organizing for Health</td>
<td>3</td>
</tr>
<tr>
<td>HHS 406</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Pre-Calculus</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 240</td>
<td>Ethics</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 31

In addition, all HPS majors take 31 hours of required major courses. HPS 440 Medical Sociology, should be taken first as it is intended as a gateway course to Health Policy Studies. HPS 410 Quantitative Research, should also be taken early on, as it shows students how to read scientific articles and familiarizes students with basic statistics. HPS 402 Health Policy Studies Senior Seminar is a capstone course for the major, bringing together the various issues raised in the program and looking at both the past and the likely future of the health care system, hence students should enroll for this course after they have taken most of the other HPS
Health Policy Studies courses. HPS 401 Health Policy Studies Internship should be taken in the senior year.

Health Policy Studies Major Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPS 364</td>
<td>Health Policy and Admin</td>
<td>3</td>
</tr>
<tr>
<td>HPS 401</td>
<td>Health Pol Studies Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>HPS 405</td>
<td>Healthcare Administration</td>
<td></td>
</tr>
<tr>
<td>HPS 402</td>
<td>HPS Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HPS 403</td>
<td>Medical Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HPS 404</td>
<td>Financing Health &amp; Medical Sys</td>
<td>3</td>
</tr>
<tr>
<td>ECON 355</td>
<td>Econ of the Medical Sector</td>
<td></td>
</tr>
<tr>
<td>HPS 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>HPS 440</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>HPS 442</td>
<td>Medical Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HPS 456</td>
<td>Health Care and the Law</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one course from the following three courses:
- HPS 448 Comparative Health Care System
- ANTH 430 Medical Anthropology
- PSYC 455 Health Psychology

Total Credit Hours 31

*By permission of the HPS Director by petition

**Health Policy Studies Tracks**

HPS students must choose one of seven (7) specialized 15-credit tracks shown below or work closely with their faculty and professional adviser to complete an individualized 15-credit track.

These tracks provide training in areas directly applicable to careers in health care services. Increased public interest in the American health care system has created a demand for administrators in hospitals, neighborhood clinics, long-term care facilities, group practices, ambulatory facilities, managed care entities such as health maintenance organizations (HMO) and preferred provider organizations. Employment in such organizations may require specialized training in management and the social and behavioral sciences.

Students intending to work in these organizations will find an optimal combination of background and skill through completing one of the tracks below. Students will improve their chances of working successfully in the health care field and/or enhance their chances of admission to graduate programs in a wide range of health, medical, or public policy fields.

Some of the courses in the tracks are drawn from other units on campus. These courses may have their own required prerequisites, such as accounting courses, ACC 298 and ACC 299; economics course, ECON 202; ITM or CIS introductory courses; or courses in the natural sciences such as CHEM 225 or BIOL 140.

**Health Planning Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Select five courses from the following:
- ANTH 415 Nutrition and Health
- ANTH 430 Medical Anthropology
- BIOL 380 Epidemiology

**Health Behavior and Health Education Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Select three courses from the following (may not double count courses from above):
- HPS 336 Perspectives in Women's Health
- HPS 412 Principles of Epidemiology
- HPS 435 Obesity and the Lifecourse
- HPS 436 Reproductive Health Policy
- HPS 475 Diversity Iss in Mental Health
- SOC 411 Program Evaluation
- HHS 406 Program Evaluation

Select one course from the following:
- ANTH 415 Nutrition and Health
- ANTH 430 Medical Anthropology
- EDC 300 Educational Psychology
- HPS 336 Perspectives in Women's Health
- HPS 412 Principles of Epidemiology
- HPS 435 Obesity and the Lifecourse
- HPS 436 Reproductive Health Policy
- HPS 475 Diversity Iss in Mental Health
- PSYC 300 Life-Span Developmental Psych
- PSYC 302 Psych of Child Development
- PSYC 412 Psychology of Aging
- PSYC 455 Health Psychology
- SOC 411 Program Evaluation
- SOC 447 Family Violence

Total Credit Hours 15
**Information Systems Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITM 310</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ITM 311</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 351</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LE 452</td>
<td>The Legal Environment of Bus</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 16

**Human Resources Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM 305</td>
<td>Human Resource Policy/Admin</td>
<td></td>
</tr>
<tr>
<td>HRM 406</td>
<td>Staffing, Training &amp; Develop</td>
<td></td>
</tr>
<tr>
<td>HRM 407</td>
<td>Compensation &amp; Performance Mgt</td>
<td></td>
</tr>
<tr>
<td>HRM 408</td>
<td>Employment Relations</td>
<td></td>
</tr>
<tr>
<td>LE 452</td>
<td>The Legal Environment of Bus</td>
<td></td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td></td>
</tr>
<tr>
<td>OB 401</td>
<td>Management Skills Development</td>
<td></td>
</tr>
<tr>
<td>OB 402</td>
<td>Organizational Change &amp; Devlp</td>
<td></td>
</tr>
<tr>
<td>OB 485</td>
<td>Seminar: Organizational Behav</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 15

**Marketing Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking &amp; Behav</td>
<td></td>
</tr>
<tr>
<td>LE 452</td>
<td>The Legal Environment of Bus</td>
<td></td>
</tr>
<tr>
<td>MKT 352</td>
<td>Mkgt Principles and Policies</td>
<td></td>
</tr>
<tr>
<td>MKT 382</td>
<td>Understanding Customers</td>
<td></td>
</tr>
<tr>
<td>MKT 402</td>
<td>Marketing Management</td>
<td></td>
</tr>
<tr>
<td>MKT 436</td>
<td>Business to Business Mkgt</td>
<td></td>
</tr>
<tr>
<td>MKT 454</td>
<td>Marketing Research</td>
<td></td>
</tr>
<tr>
<td>MKT 456</td>
<td>Advg and Sales Promotion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or MKT 458 Advertising</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 15

**Finance Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 401</td>
<td>Corporate Finance</td>
<td></td>
</tr>
<tr>
<td>FIN 402</td>
<td>Advanced Corporate Finance</td>
<td></td>
</tr>
<tr>
<td>FIN 407</td>
<td>Investment Fundamentals</td>
<td></td>
</tr>
<tr>
<td>FIN 445</td>
<td>Corporate Fin Models and Appls</td>
<td></td>
</tr>
<tr>
<td>FIN 484</td>
<td>Seminar: Financial Management</td>
<td></td>
</tr>
<tr>
<td>LE 452</td>
<td>The Legal Environment of Bus</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 15

**Individualized Track**

Students with special interests can design their own tracks in conjunction with the HPS Program Director by petition. Individualized tracks have emphasized courses in medical social work, public health, urban planning, and organizational behavior, among others.

**Notes:**

1. The same courses cannot satisfy both major and minor requirements.
2. The same courses cannot be used to satisfy both HPS core, major, and track requirements.
3. The same course cannot be used in more than one track.
4. Upper level courses, particularly in finance, information systems, and health behavior and education tracks, may require additional prerequisites.
5. Students not enrolled in the BBA program (in the College of Business) cannot elect and/or transfer more than 30 credits of coursework in disciplines offered by the College of Business.

Students are encouraged to pursue the minor in Health Policy Studies. Persons interested in a wide range of careers, including medicine, nursing, public health, government service, law, urban planning, would benefit from these classes. The minor emphasizes a data-driven, social and behavioral science approach to understanding and improving the delivery of health care and health outcomes. Some of the upper-level HPS courses have prerequisites that students should complete in advance.

**Health Policy Studies Minor**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPS 301</td>
<td>Intro to Health Policy</td>
<td>3</td>
</tr>
<tr>
<td>HPS 336</td>
<td>Perspectives in Women’s Health</td>
<td>3</td>
</tr>
<tr>
<td>HPS 364</td>
<td>Health Policy and Admin</td>
<td>3</td>
</tr>
<tr>
<td>HPS 390</td>
<td>Topics in Health Policy Stds</td>
<td>3</td>
</tr>
<tr>
<td>HPS 401</td>
<td>Health Pol Studies Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>HPS 402</td>
<td>HPS Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HPS 403</td>
<td>Medical Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HPS 404</td>
<td>Financing Health &amp; Medical Sys</td>
<td>3</td>
</tr>
<tr>
<td>HPS 405</td>
<td>Healthcare Administration</td>
<td>3</td>
</tr>
<tr>
<td>HPS 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>HPS 412</td>
<td>Principles of Epidemiology</td>
<td>3</td>
</tr>
</tbody>
</table>
Instructional Technology

Program Description

The undergraduate major in instructional technology prepares students with regards to developing the knowledge and skills to be able to improve the learning and performance of individuals by using technology across a broad spectrum of employment settings.

This program is also consistent with the mission of the newly formed College of Education, Health and Human Services (CEHHS) with its commitment to excellence rooted in strong academics, innovative research and engaged learning. Students will have the opportunity to engage in real-world learning experiences through internships in professional settings (http://cehhs-updates.blogspot.com/2016/10/cehhs-student-internship-opportunities.html). The curriculum outlined for the undergraduate degree in instructional technology provides students with a choice of a focus in either health informatics or education.

Digital technology is a key factor in almost every industry, business, educational setting and health care environments. Instructional technologists are needed in work places to train employees to use technology efficiently, to learn to use and apply new technologies as they emerge and to create training materials. Therefore, a wide variety of jobs are available for a student with a major in instructional technology including:

- Instructional Designer
- Training Developer
- Computer User Support
- Web-based Training

Instructional Technology is a field concerned with improving the efficiency and effectiveness of learning, performance improvement, and instructional delivery by using appropriate technology. The programs goals include:

- Design instruction using needs assessment
- Apply learning theory to instructional design
- Select a delivery system for the specific learning environment
- Integrate instruction with other factors that influence human performance
- Use technology in support of the development and delivery of instruction

Prerequisites (6 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
</tbody>
</table>

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Core Requirements (10 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>Business Writing &amp; Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
</tbody>
</table>

Additional hours are required to meet all of the Dearborn Discovery Core Requirements

Total Credit Hours 10

Instructional Technology Courses for Major (27 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 401</td>
<td>Res, Trends,&amp;Issues in Ed Tech</td>
<td>3</td>
</tr>
<tr>
<td>EDT 402</td>
<td>Survey of Educ Tech Tools</td>
<td>3</td>
</tr>
<tr>
<td>EDT 410</td>
<td>Teaching with Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDT 414</td>
<td>Application of Instl Design</td>
<td>3</td>
</tr>
<tr>
<td>EDT 420</td>
<td>Intro Teaching Learning Online</td>
<td>3</td>
</tr>
<tr>
<td>EDT 422</td>
<td>Educating the Digital Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDT 430</td>
<td>Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 400</td>
<td>Adult Learning:Theory/Practice</td>
<td>3</td>
</tr>
</tbody>
</table>
Choose One Upper-level Course from Communications or Composition (3 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 317</td>
<td>Case Studies in Tech Writing</td>
<td>3</td>
</tr>
<tr>
<td>COMP 331</td>
<td>Online Reprtng,Resrch,Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose One Area of Focus for the Major: Health Informatics or Education (6 Cr. Hrs.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 401</td>
<td>CHE Methods</td>
<td>3</td>
</tr>
<tr>
<td>HPS 403</td>
<td>Medical Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HHS 406</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>

Health Informatics (Choose two courses)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>EXPS 400 &amp; EXPS 401</td>
<td>STEM2 Teaching and Learning &amp; STEM2 Teach/Learn Internship</td>
<td>4</td>
</tr>
</tbody>
</table>

Select Two Mathematics Courses if you are an Integrated Science Major:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 442</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 443</td>
<td>Algebra for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 444</td>
<td>Data AnlSys,Prob&amp;Stat forTchrs</td>
<td>3</td>
</tr>
</tbody>
</table>

Select Two Natural Sciences Courses if you are a Mathematics Major:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 332</td>
<td>Inquiry: Mich Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 333</td>
<td>Inquiry: PBL in Life Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours for the Major: 36

Electives (32 Cr. Hours)

Additional Electives will be required to meet minimum credit hours for graduation. Please refer to Dearborn Discovery Core requirements to ensure these are met.

Total Hrs. for Degree: 120 total credit hours required for graduation.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. The minimum grade point average requirement for program completion is 2.5 cumulative and 2.5 in major (including the focus area).
3. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog and is expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.
4. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
5. Must meet Dearborn Discovery Core Requirements see umdearborn.edu/696973/ for details.

K-8 STEM2 Teaching Certificate

The K-8 STEM2 Teaching Certificate is designed to enhance students’ content knowledge in science, technology, engineering, mathematics and medicine, to be able to use best pedagogical practices for teaching K-8 STEM2 lessons, and to successfully integrate the STEM2 disciplines into lessons and units.

CEHHS students in the elementary certification program elect one content area for a major with about 20% selecting either science or mathematics. The new certificate provides students with the opportunity to take additional coursework in engineering, STEM education, health related courses, as well as science or mathematics. While the UM-Dearborn K-8 STEM2 Teaching Certificate does not lead to a state endorsement, it will provide evidence of the additional preparation in STEM2 for K-8 teachers.

The certificate consists of 15 undergraduate credit hours, including the newly developed EXPS 400: STEM2 Teaching and Learning. Students will participate in exemplary examples of STEM2 curricula and learn how to integrate the STEM2 disciplines within lessons and units for K-8 students.

Program Goals

The UM-Dearborn K-8 STEM2 Teaching Certificate has the following goals for students in the program. Students are:

1. Knowledgeable in the content, skills and practices of the STEM2 disciplines.
2. Knowledgeable in the use of pedagogy to integrate the STEM2 disciplines into effective lessons and units.
3. Prepared to be effective educators in K-8 STEM2 teaching.

To view application forms and admission information, please click here (https://umdearborn.edu/cehhs/professional-development-training/certificates/undergraduate-certificate-programs).

K-8 STEM2 Teaching Certificate

The K-8 STEM2 Teaching Certificate is designed to enhance students’ content knowledge in science, technology, engineering, mathematics and medicine, to be able to use best pedagogical practices for teaching K-8 STEM2 lessons, and to successfully integrate the STEM2 disciplines into lessons and units.

CEHHS students in the elementary certification program elect one content area for a major with about 20% selecting either science or mathematics. The new certificate provides students with the opportunity to take additional coursework in engineering, STEM education, health related courses, as well as science or mathematics. While the UM-Dearborn K-8 STEM2 Teaching Certificate does not lead to a state endorsement, it will provide evidence of the additional preparation in STEM2 for K-8 teachers.

The certificate consists of 15 undergraduate credit hours, including the newly developed EXPS 400: STEM2 Teaching and Learning. Students will participate in exemplary examples of STEM2 curricula and learn how to integrate the STEM2 disciplines within lessons and units for K-8 students.

Program Goals

The UM-Dearborn K-8 STEM2 Teaching Certificate has the following goals for students in the program. Students are:

1. Knowledgeable in the content, skills and practices of the STEM2 disciplines.
2. Knowledgeable in the use of pedagogy to integrate the STEM2 disciplines into effective lessons and units.
3. Prepared to be effective educators in K-8 STEM2 teaching.

To view application forms and admission information, please click here (https://umdearborn.edu/cehhs/professional-development-training/certificates/undergraduate-certificate-programs).

Code    | Title                                      | Credit Hours |
---------|--------------------------------------------|--------------|
ENGR 100 | Intro to Eng and Computers                 | 2            |
EXPS 400 & EXPS 401 | STEM2 Teaching and Learning & STEM2 Teach/Learn Internship | 4 |

Select Two Mathematics Courses if you are an Integrated Science Major:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 442</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 443</td>
<td>Algebra for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 444</td>
<td>Data AnlSys,Prob&amp;Stat forTchrs</td>
<td>3</td>
</tr>
</tbody>
</table>

Select Two Natural Sciences Courses if you are a Mathematics Major:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 331</td>
<td>Phy. Sci. &amp; Everyday Thinking</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 332</td>
<td>Inquiry: Mich Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 333</td>
<td>Inquiry: PBL in Life Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Select One Health and Human Services Course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>CHE 201</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>HHS 200</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 15 Credit Hours Required
Certificate Requirements

1. Current enrollment in the elementary certification program in CEHHS
2. An overall GPA of at least 2.75
3. Completion of the Declaration of Certificate form
4. Completion of the required coursework with a GPA of at least 2.75

Language Arts

Please refer to Elementary School Certification Program for additional degree requirements.

Major Requirements

A minimum of 37 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDC 476</td>
<td>Literacy Assessment for Instr</td>
<td>4</td>
</tr>
<tr>
<td>EDD 447</td>
<td>Tchg English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchg Engl Secnd Lang (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 475</td>
<td>Issues Lit Child/Yng People</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING 475</td>
<td>Lang Diversity: Arab Amer Comm</td>
<td>3</td>
</tr>
<tr>
<td>or LING 477</td>
<td>African American English</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 223</td>
<td>Intro to Creative Writing</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 327</td>
<td>Advanced Exposition</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 482</td>
<td>History of the English Lang</td>
<td>1</td>
</tr>
<tr>
<td>LING 475</td>
<td>Lang Diversity: Arab Amer Comm</td>
<td>1</td>
</tr>
<tr>
<td>LING 477</td>
<td>African American English</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours 38

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. The minimum number of semester hours required to graduate is 128.
8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details

Minor Requirements

A minimum of 24 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDD 447</td>
<td>Tchg English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchg Engl Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 475</td>
<td>Issues Lit Child/Yng People</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 223</td>
<td>Intro to Creative Writing</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 327</td>
<td>Advanced Exposition</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 482</td>
<td>History of the English Lang</td>
<td>1</td>
</tr>
<tr>
<td>LING 475</td>
<td>Lang Diversity: Arab Amer Comm</td>
<td>1</td>
</tr>
<tr>
<td>LING 477</td>
<td>African American English</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours 25

1. Core courses included in minor semester hours.
2. Practicum is optional in the minor.

Program Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.
3. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
4. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.
5. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

Post-Degree Programs

Application forms for any post-degree program can be obtained from the College of Education, Health, and Human Services Office of Student Success (262 FCS) or online at [http://catalog.umd.umich.edu/undergraduate/college-education-health-human-services/post-degree-programs](http://catalog.umd.umich.edu/undergraduate/college-education-health-human-services/post-degree-programs).
Certification Only Program (Elementary-COE, Secondary-COS)

Candidates with a degree from an accredited institution and wishing to earn a Michigan Elementary or Secondary Provisional Certificate, must meet the following requirements for these programs:

1. A bachelor's degree from an accredited institution is required for admission along with passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required (if taken March 5, 2016 or later). Students must have a 2.75 GPA overall and in their Elementary or Secondary major and minor (Secondary Only) to be admitted to the College of Education, Health, and Human Services teacher certification program. Once admitted to the teacher certification program, students must continue to maintain a 2.75 GPA.

2. To be eligible for directed teaching (student teaching), students must pass the relevant MTTC test: Elementary Education Test (#103) for seekers of elementary certification; the major and minor MTTC tests for seekers of secondary certification.

3. When the desired major/minor is incomplete and/or the GPA for the major and/or minor is between 2.50 and 2.74, a minimum of 12 semester hours for the major and nine (9) semester hours for a minor must be completed with UM-Dearborn courses and the cumulative GPA must be 2.75 or better.

4. Potential candidates must observe established procedures in having their credentials evaluated for the certification program. Request forms are available in the College of Education, Health, and Human Services Office of Student Success. Credentials are evaluated for acceptable majors, minors, and those supplementary courses, required by the program.

5. At least two practica at UM-Dearborn shall be required of all COE/COS students prior to student teaching.

6. A maximum of six semester hours (non-UM-Dearborn courses) will be accepted, if applicable, toward the professional studies sequence, not including directed teaching or seminar. The cumulative GPA in the professional sequence must be 2.75 or better. No community college courses can be used for credit in the EDD (methods) sequence of required courses. Grades earned in professional studies sequence courses must observe the criteria established for directed teaching eligibility.

7. When there is evidence to warrant an adjustment in requirements for an admitted COE/COS student, the Professional Standards Committee will act accordingly. Students desiring re-evaluations may use the established petition process.

8. To be eligible for certification, students must have acceptable scores from the Michigan Tests for Teacher Certification Subject Area Tests for every major, minor and endorsement desired.

9. No credit toward program is allowable for ROTC and/or physical education.

10. Foreign transcripts must be evaluated by:

   Educational Credential Evaluators, Inc.
   PO Box 514070
   Milwaukee, WI 53203-3470
   https://www.ece.org
   Telephone: (414) 289-3400

   or

   World Evaluation Services
   Bowling Green Station
   PO Box 5087
   New York NY 10274-5087
   http://www.wes.org/support/
   Telephone: (212) 966-6311

11. An English language proficiency test may be required for non-native English speakers.

12. For all practica and student teaching, the following are required:
   a. TB clearance
   b. CPR and First Aid Certification (Adult/Infant/Child)
   c. Evaluation of Oral Expression
   d. Evidence of training for dealing with infectious diseases and blood-borne pathogens
   e. Criminal background checks will be reviewed through ICHAT by the Office of Student Success each semester.

Individuals entering this program are required to meet the basic certification requirements at the time they are admitted, and which are appropriate for the particular certificate desired. To enroll, it is necessary to apply for admission to the UM-Dearborn as a "Certification Only Student," through the College of Education, Health, and Human Services. Application forms are available in the College of Education, Health, and Human Services Office of Student Success.

Professional Education Certification Program (PEC)

The Professional Education Certificate Program is for persons with a Michigan Provisional Teaching Certificate wishing to obtain a first or second renewal of their Provisional Certificate or upgrade to the Professional Education Certificate. Upon the expiration of the Michigan Provisional Teaching Certificate, teachers are required by state law to secure a Professional Education Certificate in order to retain a valid teaching credential. Application forms for this program are available in the College of Education, Health, and Human Services Office of Student Success, 262 FCS, or online at umdearborn.edu/cehhs/cehhs_post_cert/.

Curriculum

Certified teachers can qualify for a renewal of their provisional certificate or upgrade to the Michigan Professional Education Certificate (if all other State of Michigan requirements are met) by completing the 6 semester hour post-degree program offered at UM-Dearborn through the College of Education, Health, and Human Services. This program is ideal for the working teacher who wants to maintain a valid teaching credential but is not interested in pursuing a graduate degree.

The Professional Education certificate program is tailored to fit the particular professional needs and goals of the individual teacher. To meet residency requirements, students must satisfactorily complete at least 3 semester hours of advisor-approved courses in a planned 6-hour program. The entire course of study, however, can be completed at UM-Dearborn by attending classes during late afternoons, early evenings, summers, and in some cases, in online courses. Correspondence courses are not accepted.
Admission
1. Admission to this post-degree program (PEC) requires formal application to the program, a Michigan Provisional Teaching Certificate, and an approved bachelor’s degree. Official copies of transcripts and a copy of the teaching certificate are required.
2. The plan of study is agreed upon with an advisor who will meet regularly with the student to advise and monitor progress of the 6 semester hour plan of work. It is the student’s responsibility to make annual appointments with the advisor.
3. Correspondence courses may not be used in this program for either renewal or continuing certification.
4. Workshops, online courses from other universities, and conferences offering graduate credit must be approved by the Professional Standards Committee prior to enrollment.
5. When the Professional Education Certification Program is being used to earn an additional major/minor or endorsement all required coursework for the major, minor or endorsement must be completed prior to recommendation. Also, the Michigan Tests for Teacher Certification (MTTC) Subject Area Tests must be taken and acceptable scores earned prior to recommendation.

Provisional Certificate Renewals
First Provisional Renewal
Requires completion of one of the following:
• Possession of a current or expired Michigan provisional certificate.
• 6 semester hours in a planned course of study since the issuance of the provisional certificate at an approved educator preparation institution.

or
• 150 State Continuing Education Clock Hours (SCECHs) appropriate to the grade level and content endorsement(s) of the certificate held since the issuance of the provisional certificate.

or
• Combination of semester credit hours and SCECHs (30 SCECHs equate to 1 semester credit hour) since the issuance of the provisional certificate.

or
• Completion of an approved master’s or higher degree in areas appropriate to K-12 teaching at an approved educator preparation institution.

When applying for the Professional Education Certificate, the student must account for 6 semester hours of approved courses; three years of teaching experience (or the equivalent in substitute teaching) at the appropriate certificate level; and the required semester hours in state-approved reading courses (effective September 1, 2013).

Professional Education Certificate
Holders of a provisional certificate are expected to advance to the professional education certificate. The professional education certificate is valid for up to five years, and it, too, must be renewed.

Requirements for progression to the professional education certificate include:
• Possession of a current or expired Michigan provisional certificate.
• Three years of successful teaching since the issue date of the initial Provisional Certificate, within the content area and grade level of your certificate.
• Evidence of having completed a minimum of six semester hours of reading methodology if the teacher holds an elementary certificate or three semester hours for secondary certificate holders.
• EDC 560 Reading Diagnostic/Assessment Techniques K-12.

and
• Completion of a master’s or higher degree earned from a regionally accredited college or university.

or
• One of the following earned since the issue date of the most recent Provisional Teaching Certificate and within 5 years preceding the date of application:
  • 6 semester hours in a planned course of study at an approved educator preparation institution (can include EDC 560).
  • 150 State Continuing Education Clock Hours (SCECH) appropriate to the grade level and content endorsement(s) of the certificate.
  • 150 annual District Provided Professional Development (DPPD) hours appropriate to the grade level and content endorsement(s) of the certificate.
  • Combination of semester credit hours, SCECHs, and/or DPPD totaling 150 hours.

To be recommended for a Professional Education Certificate, a total of 6 semester hours in approved courses is required with a minimum 2.75 GPA.

Enhancement Program (EP)
This program (EP) is for persons with a Michigan Permanent, Continuing, or Professional Education Certificate who wish to enhance their certificate with an additional major, minor, or endorsement. Individuals
entering this program are required to meet all requirements leading to the desired additional endorsement on their teaching certificate. Additionally, the MTTC Subject Area Test must be taken and acceptable scores achieved before a recommendation can be made to the state. Application forms for this program are available in the College of Education, Health, and Human Services Office of Student Success, (262 FCS) or online at umdearborn.edu/cehhs/cehhs_post_cert.

For a full list of majors, minors and endorsements available, please visit https://umdearborn.edu/cehhs/professional-development-training/post-degree-certification.

Pre-Professional Health Certificate

This certificate assists students who plan or are preparing to apply to post bachelor's degree pre-professional health schools and programs.

The Pre-Professional Health Studies certificate creates the opportunity to take additional courses viewed as valuable by professional schools and appearing in testing processes that exist in addition to programs in mathematics and the sciences.

These courses and learning opportunities provide additional experiences and diverse content for students interested in preparing for application and admission to professional schools including dentistry, medicine, optometry, pharmacy, psychology, and other health careers such as occupational and physical therapy.

The courses included target specific learning outcomes that are designed to add to student success in professional application and testing requirements that exist in addition to traditional natural science and mathematics coursework.

Program Goals

Students will:

1. Demonstrate an understanding of the organization and delivery of health and healthcare services.
2. Demonstrate in both written and verbal formats the ability to correctly use terms relating to medical care, clinical procedures, laboratory and diagnostic tests, and common therapeutic procedures, and addiction OR the vocabulary, diagnostic categories, and major categories of mental health and illnesses.
3. Explain the social demography of health and illness in relation to the measurement and determinants of health, prevention and illness.
4. Identify and explain relevant ethical and legal issues and decisions in the delivery of health and healthcare services toward the maintenance of individual and population health.
5. Apply basic terms, principles, and methodology of program evaluation to health and human services programs and service delivery.

Pre-Professional Health Certificate Required Courses (15 credit hours)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPS 440</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>or HPS 456</td>
<td>Health Care and the Law</td>
<td></td>
</tr>
<tr>
<td>HPS 442</td>
<td>Medical Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HHS 406</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>CHE 201</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>or HHS 202</td>
<td>Mental Health Terminology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 15

Optional Internship (3 credit hours)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPS 401</td>
<td>Health Pol Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>CHE 402</td>
<td>Internship CHE</td>
<td></td>
</tr>
<tr>
<td>HHS 402</td>
<td>Public Health Internship</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 3

Public Health

Overview

Public Health focuses on improving and protecting the health of populations (e.g., families, communities, regions, nations, and globally) through research and the development of tailored interventions and programs. The Public Health major prepares students for a wide range of professional positions and offers a solid foundation to pursue an advanced degree. Students will be grounded in a multidisciplinary approach to public health practice, health policy, health economics, health administration, education, and advocacy. The program provides a framework for students to conduct research, analyze data, apply classroom learning, and develop and implement interventions to improve overall health and disease prevention for diverse populations.

Program Goals

The Public Health degree at University of Michigan-Dearborn is designed to educate students with regard to population- and health-based principles of public health. The goals of the undergraduate program in public health are to provide knowledge and skills needed to preserve, protect, and promote health.

Learning Outcomes

Public health professionals work to prevent disease, improve health outcomes, and eliminate health disparities between groups and populations. A wide range of professional competencies and skills are required in this field including:

- Problem solving: Identify and respond quickly to public health challenges.
- Components of the health system: Understand how policy, behavior, the environment, and other influences converge to affect public health.
- Leadership: Learn outreach and advocacy skills.
- Management and teamwork: Gain organizational and team-building skills that facilitate cross-sector collaboration and change management.
- Global health: Become aware of the “cultural and geopolitical sensitivities” and global power dynamics.
- Policy: Understand the policy process so that professionals can advocate for change.
• Analytic methods: Know scientific and quantitative approaches so that students can analyze and integrate data from multiple sources.
• Technology and information: Use information technology effectively.
• Budgeting and finance: Learn basic skills for making decisions that involve budgetary and financial concerns.
• Communications – Write and speak effectively to reach multiple audiences.

The Public Health major includes 42 credit hours of core courses, 46 credit hours in major courses, 12 elective credits chosen from a select group of courses, plus 20 credit hours more broadly selected. Students should also refer to the Dearborn Discovery Core requirements to ensure that those are met.

A minor in Public Health may be obtained by taking 18 credit hours from core and elective offerings. Please see the minor tab for more information.

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
• Lecture/Lab Science Course
• Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)
Capstone
Capstone (GECE) – 3 Credits (p. 22)

Public Health Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103</td>
<td>Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>Anatomy and Physiology IIA</td>
<td>4</td>
</tr>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>CHE 201</td>
<td>Medical Terminology</td>
<td></td>
</tr>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 106</td>
<td>Writing &amp; Rhetoric II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>HHS 200</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>MATH 104</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Pre-Calculus</td>
<td></td>
</tr>
<tr>
<td>PHIL 200</td>
<td>The Human Condition</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 233</td>
<td>Critical Thinking</td>
<td></td>
</tr>
<tr>
<td>PHIL 240</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Contemporary Social Problems</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 42

Group A Elective Courses (Choose 12 credit hours)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 401</td>
<td>CHE Methods</td>
<td>3</td>
</tr>
<tr>
<td>EDC 439</td>
<td>Child Maltreatment and Trauma</td>
<td>3</td>
</tr>
<tr>
<td>EDF 450</td>
<td>Hlth, Nutr, &amp; PE/Clsrm Tchrs</td>
<td>2</td>
</tr>
<tr>
<td>EDN 420</td>
<td>Intro to Emotional Impairments</td>
<td>3</td>
</tr>
<tr>
<td>ENST 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>HHS 371</td>
<td>Medicine and Addiction II</td>
<td>3</td>
</tr>
<tr>
<td>HHS 480</td>
<td>Arab American Health</td>
<td>3</td>
</tr>
<tr>
<td>HPS 440</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 440</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 455</td>
<td>Health Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 350</td>
<td>Poverty and Inequality</td>
<td>3</td>
</tr>
<tr>
<td>SOC 403</td>
<td>Minority Groups</td>
<td>3</td>
</tr>
</tbody>
</table>
Group B Elective Courses (Choose 20 credit hours)
Students also choose 20 elective credits to build breadth and depth of expertise within their own special interests. Students are encouraged to work closely with their advisors to select these courses. Individualized tracks have emphasized courses in medical social work, public health, urban planning, and organizational behavior, among others.

A minor in public health is a highly valued complement to degrees in the natural sciences (e.g., biology and chemistry), behavioral sciences (e.g., psychology and sociology), and for students interested in multidisciplinary approaches to solving contemporary problems (e.g., urban planning, environmental justice, law and criminal justice, women and gender studies). Students must complete at least 18-credits of core and elective courses to receive the minor in public health.

Public Health Minor Core Courses (6 credit hours)
All students must complete HS 200. Students must select three additional credits from the list of core courses below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS 200</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Understanding Society</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 101</td>
<td>Introduction to Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Public Health Minor Elective Courses (12 credit hours)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPS 401</td>
<td>Health Pol Studies Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>CHE 402</td>
<td>Internship CHE</td>
<td></td>
</tr>
<tr>
<td>HPS 410</td>
<td>Quantitative Research</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 381</td>
<td>Prin of Stat and Exper Design</td>
<td></td>
</tr>
<tr>
<td>HPS 412</td>
<td>Principles of Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>HPS 430</td>
<td>Health Behavior &amp; Health Educ</td>
<td>3</td>
</tr>
<tr>
<td>HPS 440</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 440</td>
<td>Medical Sociology</td>
<td></td>
</tr>
<tr>
<td>SOC 304</td>
<td>Studies in Det.Hist. &amp; Culture</td>
<td>3</td>
</tr>
<tr>
<td>HHS 350</td>
<td>Comm Organizing for Health</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 409</td>
<td>Human Body, Growth &amp; Health</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 415</td>
<td>Nutrition and Health</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
6. Courses taken on a PASS/FFAIL basis will NOT be accepted toward program completion.
7. The minimum number of semester hours required to graduate is 128.
8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details

Minor Requirements
A minimum of 20 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDC 476</td>
<td>Literacy Assessmt for Instr</td>
<td>4</td>
</tr>
<tr>
<td>EDD 447</td>
<td>Tchng English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 448</td>
<td>Pract: Tchng Engl Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>EDD 469</td>
<td>Reading in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 475</td>
<td>Issues Lit Child/Yng People</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Program Notes:
1. A minimum GPA of 2.75 is required for a minor.
2. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with the College of Education, Health, and Human Services advisor at least once a year and in the term prior to graduation.
3. Courses taken on a PASS/FFAIL basis will NOT be accepted toward program completion.
4. In order to be recommended for endorsements, students must pass the appropriate MTTC exam in addition to completing the coursework.
5. MTTC test scores must be reported by electronic delivery or direct mail from Pearson Evaluation Systems to the University of Michigan-Dearborn College of Education, Health, and Human Services. No hand carried scores will be accepted.

STEM2: Multidisciplinary Certificate
A Multidisciplinary Certificate in Science, Technology, Engineering, Mathematics and Medicine
The STEM²: A Multidisciplinary Undergraduate Certificate is designed to enhance students' content knowledge in science, technology, engineering, mathematics and medicine, and to assist students in integrating their knowledge of each of these disciplines.

Students with this certificate will be well prepared to work for industrial firms that perform outreach activities into K-12 classrooms. They would also be ideal candidates for employment by museums of science and/or industry which seek employees who can work with K-12 students by leading activities or by designing interactive exhibits exploring the intersections of science, technology, engineering, mathematics and health. Secondary teacher certification students may choose this certificate to gain multidisciplinary knowledge of STEM² in addition to their selected major/minor for teaching.

The UM-Dearborn certificate, which requires a minimum of 15 credit hrs, includes a broad, multidisciplinary group of courses to provide foundational knowledge for students interested in STEM²: Science, Technology, Engineering, Mathematics and Medicine.

Program Goals:
The UM-Dearborn STEM²: A Multidisciplinary Undergraduate Certificate has the following goals for students in the program. Students will be:

1. Aware of the nature of STEM² disciplines.
2. Knowledgeable in issues related to STEM² disciplines in education and society.

To view application forms and admission information, please click here (https://umdearborn.edu/cehhs/professional-development-training/certificates/undergraduate-certificate-programs).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>STAT 263</td>
<td>Introduction to Statistics</td>
<td>3</td>
</tr>
<tr>
<td>CHE 101</td>
<td>Intro to Health Education</td>
<td>3</td>
</tr>
<tr>
<td>HHS 200</td>
<td>Introduction to Public Health</td>
<td></td>
</tr>
<tr>
<td>HPS 430</td>
<td>Health Behavior &amp; Health Educ</td>
<td></td>
</tr>
<tr>
<td>HPS 442</td>
<td>Medical Ethics</td>
<td></td>
</tr>
<tr>
<td>Total 15 Credit Hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Certificate Requirements:
1. Current enrollment at UM-Dearborn
2. An overall GPA of at least 2.75
3. Completion of the Declaration of Certificate form
Secondary School Certification Program

Secondary School Certification Program

UM-Dearborn students may earn a bachelor’s degree while securing a recommendation for a Secondary Provisional Teacher’s Certificate. Programs are intended for those who wish to teach in either a middle school or senior high school. Students in this program will have two advisors, one in the College of Arts, Sciences, and Letters (CASL) to help plan the degree program and another, in the College of Education, Health, and Human Services, to assist in planning the teacher certification program.

Note: Education courses, or courses in the major or minor, may not be elected for pass/fail credit.

The teaching certificate awarded to the beginning secondary school teacher is the Michigan Secondary Provisional Teacher’s Certificate. This certificate is valid for teaching in grades six through twelve in those areas where the applicant has completed a major or minor, and passed the appropriate state mandated tests. It is valid for six years and may be renewed (for three years each time) provided that renewal conditions are met. Legislative or other state action may change these specifications. Therefore, students are advised to contact the Office of Student Success in the College of Education, Health, and Human Services to learn of the most recent policies.

Certification

In recommending students for teacher’s certificates, the College of Education, Health, and Human Services functions, indirectly, as an arm of the Michigan Department of Education. All such certificates awarded to students at the UM-Dearborn are issued at the request of an appropriate faculty body by the Michigan Department of Education in Lansing irrespective of the particular campus attended (Ann Arbor, Dearborn, Flint).

Campus Degree/Certification Program

Campus Degree/Certification Program

Students, upon the successful completion of certification requirements, will receive their certification recommendation through the College of Education, Health, and Human Services and their degree recommendation from CASL. Therefore, they should be properly enrolled in the College of Education, Health, and Human Services and CASL. Students are responsible for meeting all of the appropriate degree requirements legislated by the particular unit that is to recommend their degree. The College of Education, Health, and Human Services and its faculty, therefore, can accept no responsibility for seeing that students are properly acquainted with their various degree requirements. Instead, students are to seek such information from the advisors available in their own particular degree recommending unit.

Certification Advising

Certification Advising

All secondary certification students are assigned an academic advisor in the College of Education, Health, and Human Services. It is the policy of the College of Education, Health, and Human Services that all undergraduates and others seeking provisional teaching certificates are to meet with their certification academic advisor at least once per academic year. By means of this practice, the individual secondary certification student can be kept abreast of periodic modifications in the curriculum and in certification regulations.

Certification Requirements

Certification Requirements

A person desiring to earn a secondary teacher’s certificate must meet all of the conditions listed below.

1. The satisfactory completion of a degree program with an overall GPA of 2.75 or higher.
2. The satisfactory completion of a teaching major and a teaching minor, each with a GPA of 2.75 or higher.
3. The successful completion of EDA 205 Introduction to Education and EDT 211 Designing Tech-Based Learning Solutions is required of everyone desiring to qualify for a secondary teacher certification recommendation.
4. All requirements as identified in the College’s Four-Phase Checklist must be met for a teaching certificate recommendation.

College of Education, Health, and Human Services Four-Phase Checklist

College of Education, Health, and Human Services Four-Phase Checklist

The College of Education, Health, and Human Services (CEHHS) at the UM-Dearborn is committed to the ideal of quality in the field of teacher education. A screening procedure is employed to help identify those people most likely to achieve the level of excellence defined by the college. This screening procedure is divided into four successive phases. Requirements at one phase must be successfully completed before continuing on to the next. Students are also responsible for meeting all program requirements for their selected degree as listed in Degree Works.

Phase One - Initial Admission to Education

Phase One - Initial Admission to Education

All requirements listed below must be completed for progression to Phase Two:

1. Three types of students are considered for admission to the College of Education, Health, and Human Services at this entry level phase:
   • First time in any college (FTIAC) students - Campus admission standards for SAT, ACT, and high school Grade Point Average (GPA) are used in determining admission.
   • Transfer students - Campus admission standards are used for students transferring 54 or fewer semester hours. College of Education, Health, and Human Services admission standards (a minimum cumulative GPA of 2.75/4.0 scale) are used for students transferring 55 or more semester hours.
   • Degreed persons seeking certification only - College of Education, Health, and Human Services admission standards are used for individuals with a bachelor’s degree earned at a regionally accredited institution. The individual must have a cumulative GPA of 2.75 or higher in their major, minor, and overall to be admitted to the College of Education, Health, and Human Services and the Teacher Certification Program.

2. Live Scan fingerprinting and criminal background checks are required for work in school settings, which is a requirement for all teacher certification students. All background checks must be completed in the first semester of admission to the College of Education, Health, and Human Services. Live Scan fingerprinting is offered by IdentoGO/MorphoTrust USA by appointment only. Instruction/application forms are available at the CEHHS Office of Student Success, 262 FCS. To make an appointment for
Live Scan fingerprinting, call 1-866-226-2952 or visit https://mi.ibtfingerprint.com/.

3. **Proof of valid TB (tuberculosis) clearance** must be submitted to the CEHHS Office of Student Success, 262 FCS, within the first semester enrolled.

4. **Evidence of training for Infectious Diseases/Blood-borne Pathogens** must be submitted to the CEHHS Office of Student Success, 262 FCS.

5. **Completion of the Campus Composition Placement Test** within the first semester enrolled (not required for students admitted to the post-degree certification only program).

### Phase Two - Preparation for Admission to the Teacher Certification Program

All requirements listed below must be completed for progression to Phase Three:

1. Successful completion of
   - or transfer credit equivalent for COMP 105 (Writing & Rhetoric I), or waiver by Campus Composition Placement Test or university accepted high school Advanced Placement (AP) test score (not required for students admitted to the post-degree certification only program).
   - or transfer credit equivalent for EDA 205 (Introduction to Education).
   - EXPS 298 (Exploring Writing to Communicate, Learn and Teach).
   - COMP 227 (Intermediate Exposition & Argument) if prescribed by the results of the Campus Composition Placement Test (not required for students admitted to the post-degree certification only program).

2. Official record of meeting minimum scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics (if taken March 5, 2016 or later) are required.

3. Minimum of 55 earned credit hours, including transfer credit, or previously earned bachelor’s degree if applicable, with a minimum cumulative grade point average of 2.75.

4. Submission of completed **Application for Admission to Teacher Certification Program** (Phase III) form, which includes a moral turpitude statement, to the CEHHS Office of Student Success, 262 FCS.

5. Submission of **Change of Program, Major, and/or Minor Petition** form to officially declare certification major (and minor if required/desired) to the CEHHS Office of Student Success (not required for students admitted to the post-degree certification only program).

### Phase Three - Admission to Teacher Certification Program

All requirements listed below must be completed for progression to Phase Four:

1. Successful completion of the appropriate MTTC Certification Tests listed below and official score reporting directly to the University of Michigan-Dearborn (institution code 29):
   - **Elementary** certification students must pass the MTTC Elementary Education Test (#103)
   - **Secondary** certification students must pass the MTTC tests in their major and minor.

2. Completion of at least one full semester (12 credit hours) of study at UM-Dearborn.

3. Completion of Professional Studies sequence of courses.

4. Minimum cumulative GPA of 2.75 on a 4.0 scale as well as a minimum GPA of 2.75 in the major(s), minor(s), and the Professional Studies sequence.

5. Attendance at a **Student Teaching Application and Placement** meeting and completion and submission of all forms distributed to the CEHHS Office of Student Success, 262 FCS.

6. Verification with the Office of Student Success that all clearance requirements are valid and up-to-date prior to student teaching.
   - TB clearance
   - CPR and First Aid Certification (Adult/Infant/Child)
   - Evaluation of Oral Expression
   - Criminal background checks will be reviewed through ICHAT by the Office of Student Success each semester.

### Phase Four - Teacher Certification Program Completion

All requirements listed below must be completed for recommendation for a degree and/or a State of Michigan Provisional Teaching Certificate:

1. For **undergraduate degree seeking students**: Submission of completed Degree/Diploma application to the Enrollment Services Office. This application can be submitted online or printed and submitted in person, and can be found at https://umdearborn.edu/students/registration-records/graduation-commencement/applying-graduate-0.
   - Elementary certification students apply to graduate as a student in the College of Education, Health, and Human Services.
   - Secondary certification students apply to graduate as a student in the College of Arts, Sciences, and Letters.

2. **Post-degree certification only and undergraduate secondary certification program students** must submit a **Program Completer Form** to the CEHHS Office of Student Success, 262 FCS.

3. Successful completion of the chosen program, major(s), minor(s), professional studies sequence, including student teaching, and supplementary requirements with a minimum cumulative grade point average of 2.75 on a 4.0 scale, as well as minimum grade point average of 2.75 in the major(s), minor(s), and professional studies sequence.

4. Successful completion of any **additional** MTTC certification tests and official score reporting directly to the University of Michigan-Dearborn (Institution Code 29) for any **additional** endorsements sought. These scores must be reported to the University of Michigan-Dearborn College of Education, Health, and Human Services before recommendations are prepared for the state by the University of Michigan-Dearborn Certification Office:
   - **Additional** content area major(s) or minor(s) for elementary certification students.
   - **Additional** content area major(s) or minor(s), beyond the minimum requirement, for secondary certification students.

Based on this record of achievement, a decision to recommend or not to recommend and/or certification will be made.

Secondary education students pursuing a bachelor’s degree in the College of Arts, Sciences, and Letters should not confuse the requirements for their teaching major with those for their academic concentration in CASL. The courses required to complete a teaching major are determined by the College of Education, Health, and Human Services.
Areas of Study for Majors and Minors

The teaching majors and minors currently available for secondary certification students are listed below:

Biology

Major Requirements

A minimum of 32 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 311</td>
<td>Embryology and Embryology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 324</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>BIOL 333</td>
<td>Plant Biology and Plant Biology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 335</td>
<td>Plant Physiology and Plant Physiology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 350</td>
<td>Introduction to Neurobiology and Intro to Neurobiology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 353</td>
<td>Ornithology</td>
<td></td>
</tr>
</tbody>
</table>

Population and Environmental Biology:

Select two courses from below. One must be a laboratory course: 7-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 304</td>
<td>Ecology and Ecology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 315</td>
<td>Aquatic Ecosystems</td>
<td></td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Field Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 360</td>
<td>Population Genetics &amp; Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 361</td>
<td>Population Genetics &amp; Evol Lab ¹</td>
<td></td>
</tr>
<tr>
<td>BIOL 419</td>
<td>Behavior and Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 420</td>
<td>Advanced Field Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Electives

Select 0-4 credit hours from above: 0-4

Total Credit Hours 28-37

¹ One course in genetics: either BIOL 306 or BIOL 360, must be selected.

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. For the major, 16 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for a major.
4. Additional courses may be required to satisfy program and 32 semester hour requirement.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA's are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or of State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.

9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Chemistry

Major Requirements

A minimum of 33 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td></td>
</tr>
<tr>
<td>&amp; 134L</td>
<td>and General Chemistry IA Lab/Rec</td>
<td></td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td></td>
</tr>
<tr>
<td>&amp; 144L</td>
<td>and General Chem IB Lab/Rec</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td></td>
</tr>
<tr>
<td>&amp; 136L</td>
<td>and General Chem IIA Lab/Rec</td>
<td></td>
</tr>
<tr>
<td>CHEM 146</td>
<td>General Chemistry IIB</td>
<td></td>
</tr>
<tr>
<td>&amp; 146L</td>
<td>and General Chem IIB Lab/Rec</td>
<td></td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 303</td>
<td>Inorganic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 344</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 344L</td>
<td>and Quantitative Analysis Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 368</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Chemistry Course</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Select at least one from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 348</td>
<td>Environmental Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 403</td>
<td>Inorganic Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 447</td>
<td>Instrumental Methods of Analys</td>
<td></td>
</tr>
<tr>
<td>CHEM 469</td>
<td>Physical Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 470</td>
<td>Biochemistry I</td>
<td></td>
</tr>
<tr>
<td>Additional Chemistry Lab Courses</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 450</td>
<td>Adv Org Syn &amp; Character Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 452</td>
<td>Adv Inorg Synth &amp; Char Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 481</td>
<td>Physicochemical Measurements</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 30-32

Chemistry/Instructional Track

The Chemistry/Instructional Track concentration is an interdisciplinary program leading to a BS degree in Chemistry, and to a Michigan Provisional Secondary Teaching Certificate. It is a collaboration between the Department of Natural Sciences and the College of Education, Health, and Human Services. For further information, contact advisors in the Dept. of Natural Sciences and the College of Education, Health, and Human Services.

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. For the major, 16 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for the major.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.
Earth Science
Major Requirements
A minimum of 32 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 118 &amp; 118L</td>
<td>Physical Geology and Physical Geology Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 218 &amp; 218L</td>
<td>Historical Geology and Historical Geology Lab</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 340</td>
<td>Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 342</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 377</td>
<td>Field Methods</td>
<td>1</td>
</tr>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>Introductory Astronomy Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

**Electives**
Select from the following 10

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 330</td>
<td>Land Use Planning and Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 332</td>
<td>Hazardous Waste Management</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 370</td>
<td>Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 372</td>
<td>Energy Resources</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 375</td>
<td>Groundwater Hydrology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 32

**Major Notes:**
1. A minimum GPA of 2.75 is required for a major.
2. At least 15 semester hours of courses at UM-Dearborn required for a major.

**Program Notes:**
1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Economics
Major Requirements
A minimum of 30 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 301</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 302</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 351</td>
<td>Environmental Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>U S Economic History</td>
<td>3</td>
</tr>
<tr>
<td>ECON 448</td>
<td>International Trade</td>
<td>3</td>
</tr>
</tbody>
</table>

The balance of courses to be selected with the approval of the advisor in accordance with the Economic concentration and certification requirements.

Total Credit Hours 30

**Major Notes:**
1. A minimum GPA of 2.75 is required for a major.
2. For the major, 15 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for a major.

**Program Notes:**
1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.

9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

**English**

**Major Requirements**

A minimum of 30 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 323</td>
<td>Advanced Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 327</td>
<td>Advanced Exposition</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL/LING 383</td>
<td>American English</td>
</tr>
<tr>
<td>LING 425</td>
<td>Language and Society</td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
</tr>
<tr>
<td>ENGL/LING 464</td>
<td>Contemporary Rhetorical Theory</td>
</tr>
<tr>
<td>ENGL/LING 465</td>
<td>Discourse Analysis</td>
</tr>
<tr>
<td>LING 476</td>
<td>Sociolinguistics</td>
</tr>
<tr>
<td>ENGL/LING 477</td>
<td>African American English</td>
</tr>
<tr>
<td>ENGL/LING 482</td>
<td>History of the English Lang</td>
</tr>
<tr>
<td>ENGL/LING 484</td>
<td>World Englishes</td>
</tr>
</tbody>
</table>

The balance of the courses are to be selected with the approval of the degree and certification advisors in accordance with the English concentration requirements. Among the electives JASS 310, JASS 330 and COMM 340 are allowed.

Supplementary requirement (not included in the 30 semester hours):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIBR 470</td>
<td>Literature for Young People</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours** 33

**Major Notes:**

1. A minimum GPA of 2.75 is required for a major.
2. For the major, 18 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for a major.
4. COMP 105 and COMP 106 are required for undergraduate degree seekers, but cannot be counted toward the English major.
5. LING 280 is a prerequisite for linguistics courses at 300 or above.
6. ENGL 323 is a prerequisite for ENGL 332, and any 200 level English literature course is a prerequisite for most English literature courses at 300 or above.

**Program Notes:**

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA's are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.
French

Major Requirements

A minimum of 30 semester hours in coursework beyond second-year proficiency is required.

Prerequisite: FREN 202 or equivalent French language proficiency (not counted toward major).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 301</td>
<td>Advanced Conversation and Comp</td>
<td>3</td>
</tr>
<tr>
<td>FREN 302</td>
<td>Advanced Conversation and Comp</td>
<td>3</td>
</tr>
<tr>
<td>One specialized language course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 305</td>
<td>Language of Business</td>
<td></td>
</tr>
<tr>
<td>FREN 306</td>
<td>Cult Intro to French Business</td>
<td></td>
</tr>
<tr>
<td>FREN 408</td>
<td>Writing and Translating</td>
<td></td>
</tr>
<tr>
<td>One civilization course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 336</td>
<td>French Civilization of Past</td>
<td></td>
</tr>
<tr>
<td>FREN 337</td>
<td>France in the 20th Century</td>
<td></td>
</tr>
<tr>
<td>FREN 338</td>
<td>France of Today</td>
<td></td>
</tr>
<tr>
<td>FREN 339</td>
<td>Francophone Lit and Civil</td>
<td></td>
</tr>
<tr>
<td>One film course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 332</td>
<td>French Cinema</td>
<td></td>
</tr>
<tr>
<td>One literature course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 330</td>
<td>Frnc Lit: Md Ages-18 Century</td>
<td></td>
</tr>
<tr>
<td>FREN 331</td>
<td>French Lit: 19th-20th Century</td>
<td></td>
</tr>
<tr>
<td>FREN 334</td>
<td>Workshop in French Theater</td>
<td></td>
</tr>
<tr>
<td>FREN 339</td>
<td>Francophone Lit and Civil</td>
<td></td>
</tr>
</tbody>
</table>

Additional credit hours from other French area offerings: 12

Total Credit Hours 30

Major Notes:
1. A minimum GPA of 2.75 is required for a major.
2. FREN 339 is listed under two headings. Students may count it under one or the other of the headings as they wish, but not under both.
3. Concentrators are encouraged to strengthen their knowledge of French language and culture by participating in any of the approved study-abroad programs.
4. For the major, 30 semester hours must be in courses numbered 300 or above.
5. At least 15 semester hours in UM-Dearborn courses required for a major.

Program Notes:
1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

History

Major Requirements

A minimum of 30 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111</td>
<td>The American Past I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 300</td>
<td>The Study of History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 361</td>
<td>United States Economic History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
</tbody>
</table>

Balance of courses to be selected from three different global areas: 9
- Asia, Europe, Africa, the Americas, Russia or the Middle East

Total Credit Hours 30

Major Notes:
1. A minimum GPA of 2.75 is required for a major.
2. For the major, 15 semester hours must be in courses numbered 300 or above.
3. 15 semester hours in UM-Dearborn courses required for a major. 9 semester hours in UM-Dearborn courses required for a minor.

Program Notes:
1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.

3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, and 2.75 in Professional Studies.

4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.

5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.

9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Integrated Science
Major Requirements
A minimum of 36 semester hours is required spread over three of the four subject areas for Integrated Science. The remaining subject area will constitute your minor. You must minor in one of these four disciplines.

Biology

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130 &amp; 130L</td>
<td>Intro Org &amp; Environ Biology and Intro Org &amp; Envr Biol Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140 &amp; 140L</td>
<td>Intro Molec &amp; Cellular Biology and Intr Molec &amp; Cell Biol Lab/Rec</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 301 &amp; 301L</td>
<td>Cell Biology and Cell Biology Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 304 &amp; 304L</td>
<td>Ecology and Ecology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 306</td>
<td>General Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Field Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 360</td>
<td>Population Genetics &amp; Evolutn</td>
<td></td>
</tr>
</tbody>
</table>

Chemistry

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 385 &amp; 385L</td>
<td>Microbiology and Microbiology Lab</td>
<td>12</td>
</tr>
</tbody>
</table>

Total Credit Hours 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 134 &amp; 134L</td>
<td>General Chemistry IA and General Chemistry IA Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 136 &amp; 136L</td>
<td>General Chemistry IIA and General Chem IIA Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 146 &amp; 146L</td>
<td>General Chemistry IIB and General Chem IIB Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 303</td>
<td>Inorganic Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM 344 &amp; 344L</td>
<td>Quantitative Analysis and Quantitative Analysis Lab</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 10-11

Earth Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 118 &amp; 118L</td>
<td>Physical Geology and Physical Geology Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>Introductory Astronomy Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one course from the following: 1-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 218 &amp; 218L</td>
<td>Historical Geology and Historical Geology Lab</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 332</td>
<td>Hazardous Waste Management</td>
<td></td>
</tr>
<tr>
<td>GEOL 340</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOL 342</td>
<td>Physical Oceanography</td>
<td></td>
</tr>
<tr>
<td>GEOL 370</td>
<td>Environmental Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 377</td>
<td>Field Methods</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 12-15

Physics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 125 &amp; 125L</td>
<td>Introductory Physics I and Introductory Physics I Lab/Dis</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150 &amp; 150L</td>
<td>General Physics I and General Physics I Lab/Dis</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 126 &amp; 126L</td>
<td>Introductory Physics II and Intro Physics II Lab/Dis</td>
<td>4</td>
</tr>
</tbody>
</table>
Program Notes:

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. At least 15 hours of UM-Dearborn courses are required for a major.

Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.

Learning Disabilities

Major Requirements

A minimum of 30 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 401</td>
<td>Introduction to LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 401</td>
<td>Strategies for LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 403</td>
<td>Assessment of the Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDN 404</td>
<td>Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDN 402</td>
<td>Socio-vocational Transitions</td>
<td>3</td>
</tr>
<tr>
<td>PDED 405</td>
<td>Sp Ed Legisln and Litigation</td>
<td>3</td>
</tr>
<tr>
<td>EDC 417</td>
<td>Mgmt of Classroom Behavior</td>
<td>3</td>
</tr>
<tr>
<td>EDT 430</td>
<td>Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 240</td>
<td>Psych of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDD 413</td>
<td>LD Elem Directed Teaching</td>
<td>2</td>
</tr>
<tr>
<td>EDD 420</td>
<td>LD Sec Directed Teaching</td>
<td>2</td>
</tr>
<tr>
<td>EDN 408</td>
<td>LD Directed Teaching Seminar</td>
<td>2</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych Child Devel Practicum</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours 32

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. Initial certification students who elect Learning Disabilities must also select an additional content major from the following: Biology, Chemistry, Earth Science, Economics, English, French, History, Mathematics, Physics, Political Science, Social Studies, or Spanish.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.
keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.

9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Mathematics
Major Requirements
A minimum of 30 semester hours from courses numbered above MATH 105 is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 215</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 300</td>
<td>Math Lang Proof &amp; Struct</td>
<td>3</td>
</tr>
<tr>
<td>MATH 331</td>
<td>Survey of Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 412</td>
<td>First Course in Modern Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 486</td>
<td>Sec School Math for Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

Recommended electives:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 276</td>
<td>Discrete Math Meth Compr Engr</td>
<td>3</td>
</tr>
<tr>
<td>MATH 315</td>
<td>Applied Combinatorics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 372</td>
<td>Computing with Mathematica</td>
<td>3</td>
</tr>
<tr>
<td>MATH 395</td>
<td>Elementary Number Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 413</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 444</td>
<td>Data Anlys,Prob&amp;Stat forTchrs</td>
<td>3</td>
</tr>
<tr>
<td>MATH 455</td>
<td>Func of a Complex Var with App</td>
<td>3</td>
</tr>
<tr>
<td>MATH 462</td>
<td>Mathematical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>MATH 480</td>
<td>History of Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

Supplementary requirements (not included in the 30 hours):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 150</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>or CCM 172</td>
<td>Computing Environ for Math</td>
<td>4</td>
</tr>
<tr>
<td>STAT 325</td>
<td>Applied Statistics I</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credit Hours 33

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. For the major, 12 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for a major.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Physics
Major Requirements
A minimum of 32 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 150</td>
<td>General Physics I &amp; 150L &amp; 151L</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II &amp; 151L &amp; 152L</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 305</td>
<td>Contemporary Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 403</td>
<td>Electricity and Magnetism</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
Select from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 320</td>
<td>Environmental Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 360</td>
<td>Instrumentation for Scientists</td>
<td>3</td>
</tr>
</tbody>
</table>
Program Notes:

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. For the major, 18 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for a major.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.
8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.
9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Political Science

Major Requirements

A minimum of 30 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 201</td>
<td>Intro Comparative Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 313</td>
<td>American State Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 316</td>
<td>The American Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td>POL 325</td>
<td>Environmental Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td>3</td>
</tr>
<tr>
<td>or POL 471</td>
<td>American Foreign Policy I</td>
<td></td>
</tr>
<tr>
<td>or POL 472</td>
<td>American Foreign Policy II</td>
<td></td>
</tr>
</tbody>
</table>

The balance of courses to be selected with the approval of the academic advisor in accordance with the Political Science concentration and certification requirements.

Total Credit Hours 30

Major Notes:

1. A minimum GPA of 2.75 is required for a major.
2. For the major, 18 semester hours must be in courses numbered 300 or above.
3. At least 15 semester hours in UM-Dearborn courses required for a major.

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.
4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.
5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.
6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.
7. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 405</td>
<td>Optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 406</td>
<td>Thermal and Statistical Phys</td>
<td></td>
</tr>
<tr>
<td>PHYS 453</td>
<td>Quantum Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS 457</td>
<td>Atomic and Nuclear Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 460</td>
<td>Advanced Physics Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS 463</td>
<td>Solid State Physics</td>
<td></td>
</tr>
</tbody>
</table>

8. Initial certification program students must have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to student teaching.

9. Certified teachers pursuing an endorsement in a post-degree program must complete all program requirements and have passing scores on the appropriate MTTC subject area test reported to the University of Michigan-Dearborn College of Education, Health, and Human Services by electronic delivery or direct mail from Pearson Evaluation Systems prior to a recommendation being made to the State of Michigan Department of Education.

Social Studies
A minimum of 36 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Courses</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economics:</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Geography:</td>
<td></td>
</tr>
<tr>
<td>GEOG 206</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG (300-level) Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>History:</td>
<td></td>
</tr>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111</td>
<td>The American Past I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
<tr>
<td>HIST (300-level) Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Political Science:</td>
<td></td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td>3</td>
</tr>
<tr>
<td>or POL 471</td>
<td>American Foreign Policy I</td>
<td></td>
</tr>
<tr>
<td>or POL 472</td>
<td>American Foreign Policy II</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>36</td>
</tr>
</tbody>
</table>

**Major Notes:**
1. A minimum GPA of 2.75 is required for a major.
2. For the major, at least 12 semester hours must be in courses numbered 300 or above.
3. 15 semester hours in UM-Dearborn courses required for a major.

**Program Notes:**
1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.
2. Undergraduate students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.
3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in minor, and 2.75 in Professional Studies.

Spanish
Major Requirements
A minimum of 30 semester hours of coursework beyond second-year proficiency is required.

**Prerequisite:** SPAN 202 or equivalent Spanish language proficiency (hours do not count toward major).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Courses</strong></td>
<td></td>
</tr>
<tr>
<td>SPAN 301</td>
<td>Adv Conversation and Comp I</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 302</td>
<td>Advan Conversation Comp II</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 305</td>
<td>Language of Business</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One civilization course, such as:</td>
<td></td>
</tr>
<tr>
<td>SPAN 356</td>
<td>Spanish Civilization and Cult</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 357</td>
<td>Latin American Civiliztn Cult</td>
<td></td>
</tr>
<tr>
<td>SPAN 358</td>
<td>Spain in the Twentieth Century</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One literature course, such as:</td>
<td></td>
</tr>
<tr>
<td>SPAN 350</td>
<td>Masterpiece of Latin Amer Lit</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 351</td>
<td>Masterpieces of Spanish Lit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two 400-level language courses, such as:</td>
<td>4-5</td>
</tr>
<tr>
<td>SPAN 406</td>
<td>Advanced Written Expression</td>
<td></td>
</tr>
<tr>
<td>SPAN 409</td>
<td>Oral Expression</td>
<td></td>
</tr>
<tr>
<td>SPAN 420</td>
<td>Introduction to Translation</td>
<td></td>
</tr>
</tbody>
</table>
Professional Requirements

Preparation for a teaching credential consists of required courses in education. At least two practicums and methods courses in the academic major and minor are required prior to directed teaching.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
<tr>
<td>EDA 340</td>
<td>Foundations of American Ed</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td>3</td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 302</td>
<td>Adol Devl &amp; Classroom Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>EDC 304</td>
<td>Pract Adol Devl&amp;Clrsm Mgmt</td>
<td>1</td>
</tr>
<tr>
<td>EDC 460</td>
<td>Educating the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 440</td>
<td>Teach English in Second Grds</td>
<td>4</td>
</tr>
<tr>
<td>EDD 441</td>
<td>&amp; Practicum: English Second Grd</td>
<td>4</td>
</tr>
<tr>
<td>EDD 450</td>
<td>Teach Math in Second Grades</td>
<td>4</td>
</tr>
<tr>
<td>EDD 451</td>
<td>&amp; Practicum: Math Second School</td>
<td>4</td>
</tr>
<tr>
<td>EDD 480</td>
<td>Teach of Sci in the Second Grd</td>
<td>4</td>
</tr>
<tr>
<td>EDD 481</td>
<td>&amp; Practicum in Science:Secnd Grd</td>
<td>4</td>
</tr>
<tr>
<td>EDD 490</td>
<td>Tch of the Soc Stud in Sec Sch</td>
<td>4</td>
</tr>
<tr>
<td>EDD 489</td>
<td>&amp; Practicum in Soc Stud:Sec Sch</td>
<td>4</td>
</tr>
<tr>
<td>EDD 496</td>
<td>Second Lang Tchg: Sec Level</td>
<td>4</td>
</tr>
<tr>
<td>EDD 497</td>
<td>&amp; Second Lang Tchg: Sec Level</td>
<td>4</td>
</tr>
<tr>
<td>EDD 469</td>
<td>Reading in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDD 449</td>
<td>Methods Course in Selected Major/Min and practicum</td>
<td>3</td>
</tr>
<tr>
<td>EDD 421</td>
<td>Directed Teach Secondary Sch</td>
<td>12</td>
</tr>
<tr>
<td>EDD 424</td>
<td>Sem: Teaching Secondary Grds</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes:

1. Enrollment in all the required EDD courses is open only to those who are officially admitted to and in good academic standing in the Teacher Certification Program at UM-Dearborn. See Four-Phase Checklist for more information.
2. Eligibility for directed teaching requires meeting all the requirements listed on the Four-Phase Checklist as well as submission of passing scores from the MTTC (Michigan Tests for Teacher Certification) subject area tests in the student's major and minor.
3. Recommendations for other certification endorsements require passing scores from relevant MTTC subject area tests.

The program as outlined above meets the Michigan Department of Education teacher certification requirements at the time of this writing.
However, changes by the University or the Michigan Department of Education may affect some program requirements. Therefore, students are strongly advised to inquire about possible changes by checking with the College of Education, Health, and Human Services Office of Student Success and/or with their academic advisor.

**Biology**

**Minor Requirements**

A minimum of 20 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td></td>
</tr>
</tbody>
</table>

**Cell and Molecular Biology**

Select at least one course from major list

**Organismal Biology**

Select at least one course from major list

**Population and Environmental Biology**

Select at least one course from major list

Total Credit Hours 20

**Minor Notes:**

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 7 semester hours must be in courses numbered 300 or above.

**Chemistry**

**Minor Requirements**

A minimum of 20 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 134 &amp; 134L</td>
<td>General Chemistry IA and General Chem IA Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144 &amp; 144L</td>
<td>Gen Chemistry IB and General Chem IB Lab/Rec</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 136 &amp; 136L</td>
<td>General Chemistry IIA and General Chem IIA Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 146 &amp; 146L</td>
<td>General Chemistry IIB and General Chem IIB Lab/Rec</td>
<td></td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 303</td>
<td>Inorganic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 344 &amp; 344L</td>
<td>Quantitative Analysis and Quantitative Analysis Lab</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credit Hours 21

**Minor Notes:**

1. A minimum GPA of 2.75 is required for a minor.

**Earth Science**

**Minor Requirements**

A minimum of 24 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEG 203</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 118 &amp; 118L</td>
<td>Physical Geology and Physical Geology Lab/Rec</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 218 &amp; 218L</td>
<td>Historical Geology and Historical Geology Lab</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 342</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 377</td>
<td>Field Methods</td>
<td>1</td>
</tr>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>Introductory Astronomy Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours 24

**Minor Notes:**

1. A minimum GPA of 2.75 is required for a minor.

**Economics**

**Minor Requirements**

A minimum of 21 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Prin: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 301</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 302</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 351</td>
<td>Environmental Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>U S Economic History</td>
<td>3</td>
</tr>
<tr>
<td>ECON 448</td>
<td>International Trade</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 21

**Minor Notes:**

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 9 semester hours must be in courses numbered 300 or above.
English

Minor Requirements
A minimum of 20 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 323</td>
<td>Advanced Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 327</td>
<td>Advanced Exposition</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGL 383</td>
<td>American English</td>
<td></td>
</tr>
<tr>
<td>LING 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ENGL/LING 464</td>
<td>Contemporary Rhetorical Theory</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 465</td>
<td>Discourse Analysis</td>
<td></td>
</tr>
<tr>
<td>LING 475</td>
<td>Sociolinguistics</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 477</td>
<td>African American English</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 484</td>
<td>World Englishes</td>
<td></td>
</tr>
</tbody>
</table>

The balance of the courses are to be selected with the approval of the degree and certification advisors in accordance with the English concentration requirements. Among the electives JASS 310, JASS 330 and COMM 340 are allowed.

Supplementary requirement (not included in the 20 semester hours):
LIBR 470  Literature for Young People  3

Total Credit Hours  24

Minor Notes:
1. A minimum GPA of 2.75 is required for a minor.
2. COMP 105 and COMP 106 are required but do not count toward the English minor.
3. For the minor, 9 semester hours must be in courses numbered 300 or above.

English as a Second Language

Minor Requirements
Students must demonstrate experience in learning a modern second language or coursework in a modern second language or permission of Program Coordinator, or take one course in a modern language.

A minimum of 21 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDC 455</td>
<td>Assmt: Sec Lang Learning K-12</td>
<td>2</td>
</tr>
<tr>
<td>ENGL/LING 474</td>
<td>Second Lang Acquisition: Engl</td>
<td>3</td>
</tr>
<tr>
<td>LING 480</td>
<td>Concepts in Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING 476</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>Select two of the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ANTH/LING 425</td>
<td>Language and Society</td>
<td></td>
</tr>
<tr>
<td>EDC 490</td>
<td>Litrcy Instr &amp; Assess for Els</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 461</td>
<td>Modern English Grammar</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 482</td>
<td>History of the English Lang</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 484</td>
<td>World Englishes</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours  21

Minor Notes:
1. A minimum GPA of 2.75 is required for a minor.
2. EDC 447/ EDC 448 is a prerequisite for EDC 455.
3. LING 480 is a prerequisite for LING 461/ENGL 461, LING 482/ENGL 482, LING 484/ENGL 484, LING 474 and LING 476.

French

Minor Requirements
A minimum of 20 semester hours of coursework beyond second year proficiency is required.

Prerequisites: FREN 202 or equivalent French language proficiency (not counted toward major).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREN 301</td>
<td>Advanced Conversation and Comp</td>
<td>3</td>
</tr>
<tr>
<td>FREN 302</td>
<td>Advanced Conversation and Comp</td>
<td>3</td>
</tr>
<tr>
<td>One specialized language course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 305</td>
<td>Language of Business</td>
<td></td>
</tr>
<tr>
<td>FREN 306</td>
<td>Cult Intro to French Business</td>
<td></td>
</tr>
<tr>
<td>FREN 408</td>
<td>Writing and Translating</td>
<td></td>
</tr>
<tr>
<td>One civilization course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 336</td>
<td>French Civilization of Past</td>
<td></td>
</tr>
<tr>
<td>FREN 337</td>
<td>France in the 20th Century</td>
<td></td>
</tr>
<tr>
<td>FREN 338</td>
<td>France of Today</td>
<td></td>
</tr>
<tr>
<td>FREN 339</td>
<td>Francophone Lit and Civil</td>
<td></td>
</tr>
<tr>
<td>One film course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 332</td>
<td>French Cinema</td>
<td></td>
</tr>
<tr>
<td>One literature course, such as:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FREN 330</td>
<td>Frnch Lit: Md Ages-18 Century</td>
<td></td>
</tr>
<tr>
<td>FREN 331</td>
<td>French Lit: 19th-20th Century</td>
<td></td>
</tr>
<tr>
<td>FREN 334</td>
<td>Workshop in French Theater</td>
<td></td>
</tr>
<tr>
<td>FREN 339</td>
<td>Francophone Lit and Civil</td>
<td></td>
</tr>
</tbody>
</table>

Additional credit hours from other French area offerings  2-3

Total Credit Hours  20-21
Minor Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. FREN 339 is listed under two headings. Students may count it under one or the other of the headings as they wish, but not under both.
3. Concentrators are encouraged to strengthen their knowledge of French language and culture by participating in any of the approved study-abroad programs.
4. For the minor, 20 semester hours must be in courses numbered 300 or above.

**Geography**

**Minor Requirements**

A minimum of 21 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 201</td>
<td>Cultural Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>Geography of the United States</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 206</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 310</td>
<td>Economic Geography</td>
<td>3</td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 302</td>
<td>Mapping Our World</td>
<td></td>
</tr>
<tr>
<td>GEOG 305</td>
<td>Intro to GIS</td>
<td></td>
</tr>
</tbody>
</table>

Supplementary Requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111</td>
<td>The American Past I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 300</td>
<td>The Study of History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 361</td>
<td>United States Economic History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 21-22

Minor Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 9 semester hours must be in courses numbered 300 or above.
3. 9 semester hours in UM-Dearborn courses required for a minor.

**History**

**Minor Requirements**

A minimum of 21 semester hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111</td>
<td>The American Past I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 300</td>
<td>The Study of History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 361</td>
<td>United States Economic History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 21

Minor Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 9 semester hours must be in courses numbered 300 or above.
3. 9 semester hours in UM-Dearborn courses required for a minor.

**Integrated Science**

A minimum of 20 additional hours is required in one of the subject areas: Biology, Chemistry, Earth Science, Physics. See information under Major-Integrated Science.

Additional Notes:

1. An overall GPA of 2.75 or better is required for a major.
2. At least 15 hours of UM-Dearborn courses are required for a major.

**German**

**Minor Requirements**

A minimum of 20 semester hours is required beyond second-year proficiency.

**Prerequisites:** GER 202 or equivalent German language proficiency. (Hours not counted in the 20 semester hour requirement.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GER 301</td>
<td>Advancing Competencies I</td>
<td>3</td>
</tr>
<tr>
<td>GER 302</td>
<td>Advancing Competencies II</td>
<td>3</td>
</tr>
<tr>
<td>GER 305</td>
<td>German for the Professions</td>
<td>3</td>
</tr>
</tbody>
</table>

One cultural course, such as: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GER 376</td>
<td>Contemporary German Cultures</td>
<td></td>
</tr>
<tr>
<td>GER 371</td>
<td>Germ Lit: Classic and Romantic</td>
<td></td>
</tr>
<tr>
<td>GER 372</td>
<td>Introduction to German Lit</td>
<td></td>
</tr>
<tr>
<td>GER 371</td>
<td>Germ Lit: Classic and Romantic</td>
<td></td>
</tr>
<tr>
<td>GER 372</td>
<td>Introduction to German Lit</td>
<td></td>
</tr>
<tr>
<td>GER 376</td>
<td>Contemporary German Cultures</td>
<td></td>
</tr>
<tr>
<td>GER 390</td>
<td>Topics in German</td>
<td></td>
</tr>
</tbody>
</table>

Two additional credit hours from other upper-level German area offerings, including one-hour reading courses.

Total Credit Hours 20

**Mathematics**

**Minor Requirements**

A minimum of 20 semester hours from courses numbered above MATH 105 is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>
MATH 300  Math Lang Proof & Struct  3
MATH 331  Survey of Geometry  3
MATH 486  Sec School Math for Teachers  3

Recommended electives, if needed:

MATH 215  Calculus III
MATH 276  Discrete Math Meth Comptr Engr
MATH 315  Applied Combinatorics
MATH 372  Computing with Mathematica
MATH 395  Elementary Number Theory
MATH 412  First Course in Modern Algebra
MATH 444  Data Anlys,Prob&Stat for Tchrs
MATH 455  Func of a Complex Var with App
MATH 462  Mathematical Modeling
MATH 480  History of Mathematics

STAT 325  Applied Statistics I (or a course in data analysis and probability)

Supplementary requirements (not included in the 20 hours):

CIS 150  Computer Science I
or  CCM 172  Computing Environ for Math
or a programming course in C++, Basic or Logo

Total Credit Hours  20

Minor Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 9 semester hours must be in courses numbered 300 or above.

Physics

Minor Requirements
A minimum of 20 semester hours is required.

Required Courses

Select from the following:

PHYS 125  Introductory Physics I
& 125L  Introductory Physics I Lab/Dis

PHYS 150  General Physics I
& 150L  General Physics I Lab/Dis

Select from the following:

PHYS 126  Introductory Physics II
& 126L  Intro Physics II Lab/Dis

PHYS 151  General Physics II
& 151L  General Physics II Lab/Dis

PHYS 305  Contemporary Physics

Additional hours selected from the following:

PHYS 320  Environmental Physics
PHYS 360  Instrumentation for Scientists
PHYS 401  Mechanics
PHYS 403  Electricity and Magnetism
PHYS 405  Optics
PHYS 453  Quantum Mechanics
PHYS 457  Atomic and Nuclear Physics

PHYS 460  Advanced Physics Laboratory
PHYS 463  Solid State Physics

Total Credit Hours  20

Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 9 semester hours must be in courses numbered 300 or above.

Political Science

Minor Requirements
A minimum of 21 semester hours is required.

Required Courses

HIST 103  The World Since 1500 CE  3
POL 101  Intro to American Government  3
POL 201  Intro Comparative Government  3
POL 313  American State Government  3
POL 316  The American Judicial Process  3
POL 325  Environmental Politics  3

Select one of the following:

POL 371  Problems in Intl Politics  3
or  POL 471  American Foreign Policy I
or  POL 472  American Foreign Policy II

Total Credit Hours  21

Notes:

1. A minimum GPA of 2.75 is required for a minor.
2. For the minor, 9 semester hours must be in courses numbered 300 or above.
3. 9 semester hours in UM-Dearborn courses required for a minor.

Psychology

Minor Requirements
A minimum of 21 semester hours is required.

Required Courses

PSYC 101  Introduction to Psychology  3
PSYC 300  Life-Span Developmental Psych  3
PSYC 320  Social Psychology  3

Select one of the following:

PSYC 315  Personality Development
PSYC 4445  Personality Assessment Lab
PSYC 450  Personality Theory

Select three of the following:

PSYC 321  Attitude and Social Behavior
PSYC 322  Psychology of Prejudice
PSYC 363  Cognitive Psychology
PSYC 418  Cognitive Development
Special Education

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 105</td>
<td>Writing &amp; Rhetoric I</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 298</td>
<td>Exp Writing-Comm Learn&amp;Tch</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 465</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>LING 280</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 282</td>
<td>History &amp; Civics Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 283</td>
<td>Geography &amp; Econ Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 220</td>
<td>Science in the Elem School</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 231</td>
<td>Inquiry: Physical Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 232</td>
<td>Inquiry:Earth/Planet Science</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 233</td>
<td>Inquiry: Life Science</td>
<td>3</td>
</tr>
<tr>
<td>MATH 385</td>
<td>Math for Elemen Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 386</td>
<td>Math for Elem Teachers II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 387</td>
<td>Math for Elem Teachers III</td>
<td>3</td>
</tr>
<tr>
<td>Supplementary Content Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDA 419</td>
<td>Early Literacy/Language Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDF 450</td>
<td>Hlth, Nutr, &amp; PE/Clsrm Tchrs</td>
<td>2</td>
</tr>
<tr>
<td>EXPS 250</td>
<td>Elem Ed Vis &amp; Perf Arts</td>
<td>3</td>
</tr>
<tr>
<td>Pre-Professional Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDA 205</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 241</td>
<td>Psych: Child Devel Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDT 211</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Notes:
1. A minimum GPA of 2.75 is required for a minor.
2. 20 semester hours must be in courses numbered 300 or above.
3. Concentrators must take at least one course that deals specifically with Spanish (peninsular) topics such as SPAN 351, SPAN 356, or SPAN 358 and at least one course that deals with the Latin American topics such as SPAN 350 or SPAN 357.
4. Concentrators are encouraged to strengthen their knowledge of Spanish language and Hispanic culture by participating in any of the approved study-abroad programs.

Speech

Minor Requirements

A minimum of 21 semester hours is required.

Prerequisite: SPEE 101 and COMM 220 (hours not counted toward minor).
Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

Major Requirements

A minimum of 30 semester hours from the following:

Select 3 credit hours from DDC Upper Level Writing (EDC 442, EXPS 420 or ENGL 327 recommended)

Total Credit Hours 57

Program Notes:

1. All College of Education, Health, and Human Services undergraduate students are required to take the Composition Placement Test by the end of the first semester they are enrolled in classes.

2. Students transferring in COMP 105 or COMP 106, but receiving the prescription of 099 from the Composition Placement Test, must complete COMP 227 before taking EDD courses.

3. Minimum GPA’s are required for program completion: 2.75 cumulative, 2.75 in major, 2.75 in optional minor(s), and 2.75 in Professional Studies.

4. For admission to Phase III of the teacher certification program, passing scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of 480 in Evidence-Based Reading and Writing and 530 in Mathematics are required.

5. Advising Policy: The student is responsible for complying with requirements described in the Undergraduate Catalog as well as on the Four Phase Checklist. Students are expected to meet with their College of Education, Health, and Human Services advisor at least once per year and in the term prior to graduation.

6. Courses taken on a PASS/FAIL basis will NOT be accepted toward program completion.

7. The minimum number of semester hours required to graduate is 128.

8. CEHHS recommends successful program completers for State of Michigan Certification, however, it is ultimately up to the State of Michigan to issue certificates. Certain offenses on a criminal record can keep individuals from obtaining teacher certification. Please refer to The Revised School Code, Act 451 of 1976, section 380.1539b.

9. Students must meet Dearborn Discovery Core requirements. See http://umdearborn.edu/696973/ for details.

Professional Requirements

The professional sequence of education courses consists of a minimum of 42 semester hours of credit. This concentration of study represents the core of your professional preparation. At least two practicums are required prior to student teaching. The semester hours are distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 340</td>
<td>Foundations of American Ed (Multicultural Education)</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 410</td>
<td>Multicult in School and Soc</td>
<td>3</td>
</tr>
<tr>
<td>EDC 300</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 460</td>
<td>Educating the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 452</td>
<td>Methods of Teaching Math K-8</td>
<td>3</td>
</tr>
<tr>
<td>EDD 468</td>
<td>Teach Read/Lang Arts- Elem Grd 1</td>
<td>3</td>
</tr>
<tr>
<td>EDD 467</td>
<td>Practicum in Reading Instruct 1</td>
<td>1</td>
</tr>
<tr>
<td>EDD 471</td>
<td>Reading Instr: Models and Meth 1</td>
<td>3</td>
</tr>
<tr>
<td>EDD 485</td>
<td>Teach Science in the Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 495</td>
<td>Social Studies in the Elem Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 491</td>
<td>Soc Std Elem Grades Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDD 435</td>
<td>Dir Teaching: Elementary Sch</td>
<td>12</td>
</tr>
<tr>
<td>EDD 437</td>
<td>Sem: Teaching Elementary Grds</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours 42
EDD 467 and EDD 471 are to be taken concurrently. Both require EDD 468 as a prerequisite.

Notes:

1. Enrollment in all the required EDD courses is open only to those who are officially admitted to and in good academic standing in the Teacher Certification Program at UM-Dearborn. See Four-Phase Checklist for more information.
2. Eligibility for directed teaching requires meeting all the requirements listed on the Four-Phase Checklist as well as submission of passing scores from the MTTC (Michigan Tests for Teacher Certification) subject area test: Elementary Education (#103).
3. Recommendations for other certification endorsements require passing scores from relevant MTTC subject area tests.
4. Minimum number of hours to graduate is 128 semester hours.

**Social Studies**

Please refer to Elementary School Certification Program for additional degree requirements.

**Major Requirements**

A minimum of 36 semester hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPS 282</td>
<td>History &amp; Civics Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 283</td>
<td>Geography &amp; Econ Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>HIST 101</td>
<td>The World to 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 103</td>
<td>The World Since 1500 CE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>The American Past II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3601</td>
<td>Michigan History</td>
<td>3</td>
</tr>
<tr>
<td>POL 101</td>
<td>Intro to American Government</td>
<td>3</td>
</tr>
<tr>
<td>POL 371</td>
<td>Problems in Intl Politics</td>
<td>3</td>
</tr>
<tr>
<td>or POL 471</td>
<td>American Foreign Policy I</td>
<td></td>
</tr>
<tr>
<td>or POL 472</td>
<td>American Foreign Policy II</td>
<td></td>
</tr>
<tr>
<td>GEOG 206</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>300 Level GEOG Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Introductory Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 202</td>
<td>Prin: Microeconomics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 36

**College of Engineering and Computer Science**

**Engineering: The Profession**

Engineers are the link between scientific knowledge and practical applications. Engineers combine various roles and functions in their job. What are engineers?

- Engineers are science-knowledgeable men and women who use mathematics, chemistry, and physics for an applied purpose.
- Engineers invent, design, or improve products that people want to buy or use.
- Engineers are business people who design, manufacture, or sell a technical product or service to customers, taking into consideration safety, cost, quality, reliability, societal impact, and ease of use.
- Engineers are planners and integrators who bring together skills and knowledge from many disciplines and fields for some technical purpose or application.
- Engineers are creative problem-solvers and doers: they make decisions and get things done in a combined science/technical/business/applied profession.
- Engineers analyze problems, develop design solutions, and pay close attention to detail.
- Engineers interact with a variety of people, including clients, scientists, other engineers, technicians, managers, and government officials.
- Engineers are interested in how and why things work and like practical challenges.
- Successful engineers are known for their analytical, imaginative, and creative skills, for using common sense, for being team players, for
being able to pick up new knowledge and skills quickly, and for their commitment to continue to improve and learn.


Computer Science: The Profession

Computer and information scientists offer expertise in the effective and efficient use of computers for tackling a broad spectrum of practical challenges, usually in a team environment. Computer and information science includes the following sub-specialties: operating systems, compilers, computer graphics, computer game design, computer networks and network administration, security, enterprise computing technologies, information and database systems and database administration, information retrieval, artificial intelligence and machine learning, robotics, theoretical computer science, programming languages, software engineering and web technologies. Software engineering is the area within computer science that is concerned with the theoretical and practical aspects of the detailed design, building, testing, modification, optimization, and maintenance of large, high quality, software systems for a wide range of applications across society. Software engineers analyze users' needs and work as part of a core team to design, create, and implement high quality and cost effective new software, computer applications, and utility programs. A core team may be composed of software engineering, manufacturing, design, management, and marketing people who work together until the software product is released and implemented.

Data scientists use programming, mathematics/statistics, and modeling skills to convert data for companies, governments, and other institutions into actionable information and insight. Digital Forensics is the area of computer science concerned with the examination and analysis of computer hard drives, storage devices, cell phones, PDAs or any electronic device that may hold evidence that could be used in a court of law. The digital forensics analyst uncovers and preserves data for later use as legal evidence, and analyzes the data in light of a particular crime or criminal or civil investigation. Cybersecurity and Privacy is the area of computer science concerned with fundamental security and privacy concepts including confidentiality, integrity, access control, security architecture and systems, and attack/defense in various application areas, ranging from computer security to network security, from wired security to wireless security, from data security to application security, from every day security to enterprise security.

The College of Engineering and Computer Science offers undergraduate degrees in four computer science fields: Computer and Information Science, Cybersecurity and Information Assurance, Data Science, and Software Engineering.

Career Choice

What can help students to decide to pursue a career in engineering or computer science? Some of the clues are an interest in and successful completion of science, mathematics, and computer science courses; a desire and ability to investigate the “why” as well as the “how” of things; and an interest in the creative development of devices or systems that meet specific needs. Not all of these signs or interests will fit everyone, but they can be used as a guide.

The College of Engineering and Computer Science, Office of Advising and Academic Success, has online information about careers in engineering and computer science and a number of links to very informative external web sites.

Individuals with interests in using science and mathematics to benefit others will find that engineering and computer science professions offer a wide variety of career and employment choices and opportunities.

Admissions counselors at UM-Dearborn and academic advisors of the College of Engineering and Computer Science are glad to talk with students about career choices or choosing the school that best suits their interest and abilities. Prospective students are welcome to contact the College of Engineering and Computer Science and to read the information on the College’s web page.

Educational Goals and Programs

The mission of the College of Engineering and Computer Science is to be the leader in providing quality undergraduate and graduate programs in an environment integrated with engineering practice, research, and continuing professional education, in close partnership with the industrial community.

The College of Engineering and Computer Science’s (CECS) educational objective is to prepare its students to take positions of leadership commensurate with their interests and abilities in a world where science, engineering, and human relations are of basic importance.

Programs of study integrate fundamental mathematical and scientific theory with experiments, advanced analysis, and design practice to produce the coherent educational preparation required of professional engineers and computer scientists.

Both the CECS academic curriculum and cooperative education placements are planned to prepare students to become practicing engineers or computer scientists, administrators, or investigators. The knowledge, skills, and discipline gained from the CECS degree programs are broad and fundamental and also constitute excellent preparation for other careers, such as law and medicine.

Undergraduate Requirements

The College of Engineering and Computer Science (CECS) offers undergraduate programs leading to the Bachelor of Science in Engineering (BSE) degree in the following fields: Bioengineering, Computer Engineering, Electrical Engineering, Industrial and Systems Engineering, Manufacturing Engineering, Robotics Engineering, and Mechanical Engineering. (Students in these BSE programs may also choose to earn a concurrent second degree in Engineering Mathematics.)

The College also offers an undergraduate degree program leading to a Bachelor of Science (BS) in the following fields: Computer and Information Science (CIS), Cybersecurity and Information Assurance (CIA), Data Science, and Software Engineering. The CIS program has two concentrations: computer science and information systems. The CIA program has two concentrations: digital forensics and cybersecurity and privacy. (Students in these BS programs may also choose to earn a concurrent second degree in CIS Mathematics.)

The minimum credit-hour requirement for the degree programs in engineering is 125 to 128 semester credits, depending on the specific major. The BS in Software Engineering, Data Science, Cybersecurity and Information Assurance, or in Computer and Information Science requires a minimum of 120 to 123 semester credits of course work, depending on the specific major.
The first two years can be considered pre-professional study covering foundation subjects, and the last two years are the specialized, professional phase of the degree program.

The scholastic requirements for graduation are given under “Requirements for Graduation” section of this Catalog. For the detailed requirements specified by the College of Engineering and Computer Science for each of its undergraduate programs, see the sections for each program below.

Students have the option of earning a minor in addition to their major. CECS offers a minor in Computer and Information Science. The College of Arts, Sciences, and Letters and the College of Business offer various minors of interest to CECS students. See the relevant sections of this Catalog.

The CECS Office of Advising and Academic Success, 2000 Heinz Prechter Engineering Complex (HPEC). 313-593-5510, umd-cecs-undergrad@umich.edu, is the primary contact for undergraduate students seeking academic advising and for information about all undergraduate degree programs of the College of Engineering and Computer Science.

Admission to the College of Engineering and Computer Science

Admission to the College of Engineering and Computer Science (CECS) follows the traditional selective admission standards of the University of Michigan-Dearborn. Students are admitted directly to CECS as freshmen or as transfer students from other colleges or universities. Admission requirements for entering as a freshman student are described in the Undergraduate Admissions section of this Catalog.

Admission as a Transfer Student

The College of Engineering and Computer Science admits transfer students who have completed course work at a community college or at another four-year school, who have earned a minimum recalculated GPA of 2.75.

Transfer students can enter at or before the sophomore/junior level, and preparatory work must include completion of Calculus II, and completion of one science course that counts toward the requirements of the specific degree program, both with a grade of C or higher. Generally, the mathematics, science, or pre-engineering/pre-computer science programs of other engineering schools, of community colleges, and of liberal arts programs provide an appropriate preparation for admission to the College of Engineering and Computer Science.

Transfer guides (https://undearborn.edu/cecs/undergraduate-programs/advising/prospective-students) for students interested in transferring into CECS from nearby colleges are available online. Advisors at UM-Dearborn are available to assist prospective students by recommending a specific program of courses at a two-year institution to be taken prior to transfer.

Transfer of Credits

An appraisal of the previous record of a student transferring to the University of Michigan-Dearborn is made at the time of admission to determine the number of credits that apply toward the degree program specified by the applicant. In general, credit will be given for courses taken at accredited institutions in which the student earned at least a C grade and provided that the courses can appropriately be applied as meeting requirements of the student’s chosen degree program. Credit is not transferable for courses in which grades less than C or equivalent was earned in another institution. Irrespective of the number of credits the student has previously earned, a student must complete through instruction from the University of Michigan-Dearborn faculty, a minimum of 30 of the last 36 credits presented for the degree. At least 30 credits must be upper-level course work in their CECS major at the University of Michigan-Dearborn in order to qualify for a University of Michigan-Dearborn degree.

CECS Office of Advising and Academic Success

The College of Engineering and Computer Science (CECS) Office of Advising and Academic Success is the primary contact for undergraduate students for academic advising and for information about all undergraduate CECS programs. The office provides the following services to CECS undergraduate students:

• academic advising of new and continuing students
• evaluation of transfer credits, admission of cross-campus transfer applicants
• coordination of registration, drops, adds, and total withdrawals
• handling of petitions and individual requests
• degree audits of students’ credits toward graduation
• placement and release of academic holds
• handling of academic (probationary) actions and petitions
• readmission of previously enrolled students
• final certification of degree completion.


Majors

• Bioengineering (p. 237)
• CIS Mathematics (p. 238)
• Computer and Information Science (p. 241)
• Computer Engineering (p. 240)
• Cyber security and Information Assurance (http://catalog.umd.umich.edu/undergraduate/college-engineering-computer-science/cyber-security-information-assurance)
• Data Science (p. 244)
• Electrical Engineering (p. 246)
• Engineering Mathematics (p. 248)
• Industrial and Systems Engineering (p. 249)
• Manufacturing Engineering (p. 251)
• Mechanical Engineering (p. 253)
• Robotics Engineering (p. 255)
• Software Engineering (p. 257)
Minors
• Computer and Information Science (p. 244)

Certificates
• Practical Aspects of Computer Security (p. 254)

Administration
Tony England, PhD, Dean
Ghassan Kridli, PhD, Associate Dean for Undergraduate Education
Yi Lu Murphey, PhD, Associate Dean for Graduate Education and Research
John Cristiano, PhD, Director, Henry W. Patton Center for Engineering Education and Practice, and Institute for Advanced Vehicle Systems
Anthony DeLaRosa, MA, Assistant Director, Experiential Learning and Co-op Education
M. Jeanne Girard, MPA, Director, Office of Extended Learning and Outreach
Eric Kirk, Director, Lab Safety
Leigh McGrath, BS, Director, Business Operations
Lisa Remsing Hall, PhD, Director, Advising and Academic Success

Chairs and Directors
Ben Q. Li, Chair, Department of Mechanical Engineering
Paul Richardson, Chair, Department of Electrical and Computer Engineering
Armen Zakarian, Chair, Department of Industrial and Manufacturing Systems Engineering
Qiang Zhu, Chair, Department of Computer and Information Science

Professors Emeriti
Aswad, A. Adnan, PhD, Professor Emeritus of Industrial and Manufacturing Systems Engineering
Boffi, Luiz V., ScD, Professor Emeritus of Electrical and Computer Engineering
Bolling, Fredric, PhD, Professor Emeritus of Mechanical Engineering
Cairns, J. Robert, PhD, Professor Emeritus of Mechanical Engineering
Chang, Chia-hao, PhD, Professor Emeritus of Industrial and Manufacturing Systems Engineering
Conlon, Howard E., MS, Associate Professor Emeritus of Mechanical Engineering
Despres, Thomas A., PhD, Professor Emeritus of Mechanical Engineering
Habib, Izzeddin S., PhD, Professor Emeritus of Mechanical Engineering
Heim, Dwight S., PhD, Professor Emeritus of Electrical Engineering
Kachhal, Swatantra K., PhD, Professor Emeritus of Industrial and Manufacturing Systems Engineering
Kampfner, Roberto, PhD, Associate Professor Emeritus of Computer and Information Science
Knight, James W., PhD, Associate Professor Emeritus of Industrial and Manufacturing Systems Engineering
Murtuza, Syed, PhD, Professor Emeritus of Electrical and Computer Engineering
Riordan, John, MS, Professor Emeritus of Computer and Information Science
Sullivan, Joseph E., MS, Associate Professor Emeritus of Electrical and Computer Engineering
Tsui, Louis, PhD, Associate Professor Emeritus of Computer and Information Science
Wolf, Louis W., PhD, Associate Professor Emeritus of Mechanical Engineering

Faculty
Department of Computer and Information Science
Abouelenien, Mohamed, PhD, University of North Texas, Assistant Professor of Computer and Information Science
Akingbehin, Kiumi, PhD, Wayne State University, Professor of Computer and Information Science
Bacha, Anya, PhD, The Ohio State University, Assistant Professor of Computer and Information Science
Dehzangi, Omid, PhD, Nanyang Technological University, Assistant Professor of Computer and Information Science
Elenbogen, Bruce, PhD, Northwestern University, Associate Professor of Computer and Information Science
Grosky, William I., PhD, Yale University, Professor of Computer and Information Science
Guo, Jinhua, PhD, University of Georgia, Assistant Professor of Computer and Information Science
Kessentini, Marouan, PhD, University of Montreal, Assistant Professor of Computer and Information Science
Ma, Di, PhD, University of California-Irvine, Assistant Professor of Computer and Information Science
Maxim, Bruce, PhD, University of Michigan, Professor of Computer and Information Science
Medjahed, Brahim, PhD, Virginia Tech University, Assistant Professor of Computer and Information Science
Neji, Sana, MBA/MS, University of Quebec, Lecturer III of Computer and Information Science
Ortiz, Luis, PhD, Brown University, Assistant Professor of Computer and Information Science
Shen, Jie, PhD, University of Saskatchewan, Assistant Professor of Computer and Information Science
Wang, Shengquan, PhD, Texas A&M University, Assistant Professor of Computer and Information Science
Xu, Zhiwei, PhD, Florida Atlantic University, Assistant Professor of Computer and Information Science
Yoon, David, PhD, Wayne State University, Associate Professor of Computer and Information Science
Zhu, Qiang, PhD, University of Waterloo, Professor of Computer and Information Science

**Department of Electrical and Computer Engineering**

Awad, Selim Saad, PhD, Polytechnic Institute of Grenoble, Professor of Electrical and Computer Engineering
Baek, Stanley, PhD, University of California-Berkeley, Assistant Professor of Electrical and Computer Engineering
Bai, Hua, PhD, Tsinghua University, Associate Professor of Electrical and Computer Engineering
El Kateeb, Ali, PhD, Concordia University, Associate Professor of Electrical and Computer Engineering
Islam, Riadul, PhD, University of California-Santa Cruz, Assistant Professor of Electrical and Computer Engineering
Kim, Taeyhong, PhD, Texas A&M, Associate Professor of Electrical and Computer Engineering
Lakshmanan, Sridhar, PhD, University of Massachusetts Amherst, Associate Professor of Electrical and Computer Engineering
Liu, Chun-Hung, PhD, University of Texas-Austin, Assistant Professor of Electrical and Computer Engineering
Malik, Hafiz, PhD, University of Illinois at Chicago, Associate Professor of Electrical and Computer Engineering
Miller, John, PhD, University of Toledo, Associate Professor of Electrical and Computer Engineering
Murphey, Yi Lu, PhD, University of Michigan, Professor of Electrical and Computer Engineering
Putty, Michael, PhD, University of Michigan, Lecturer III of Electrical and Computer Engineering
Rawashdeh, Samir, PhD, University of Kentucky, Assistant Professor of Electrical and Computer Engineering
Richardson, Paul C., PhD, Oakland University, Professor of Electrical and Computer Engineering
Shaout, Adnan, PhD, Syracuse University, Professor of Electrical and Computer Engineering
Shridhar, Malayappan, PhD, University of Aston, Professor of Electrical and Computer Engineering
Su, Wencong, PhD, North Carolina State University, Assistant Professor of Electrical and Computer Engineering
Wang, Mengqi, PhD, North Carolina State University, Assistant Professor of Electrical and Computer Engineering
Watta, Paul, PhD, Wayne State University, Associate Professor of Electrical and Computer Engineering
Wei, Lu, PhD, Aalto University, Assistant Professor of Electrical and Computer Engineering
Xiang, Weidong, PhD, Tsinghua University, Professor of Electrical and Computer Engineering
Yi, Yasha, PhD, Massachusetts Institute of Technology, Associate Professor of Electrical and Computer Engineering
Zhao, Dongming, PhD, Rutgers University, Professor of Electrical and Computer Engineering
Zheng, Yu, PhD, University of North Carolina, Assistant Professor of Electrical and Computer Engineering

**Department of Industrial Manufacturing Systems Engineering**

Ayoub, Georges Y., PhD, University of Lille, Assistant Professor of Industrial and Manufacturing Systems Engineering
Chehade, Abdallah, PhD, University of Wisconsin-Madison, Assistant Professor of Industrial and Manufacturing Systems Engineering
Chen, Xi, PhD, University of Minnesota, Assistant Professor of Industrial and Manufacturing Systems Engineering
Chen, Yubao, PhD, University of Wisconsin-Madison, Professor of Industrial and Manufacturing Systems Engineering
Hu, Jian, PhD, Northwestern University, Assistant Professor of Industrial and Manufacturing Systems Engineering
Hu, Zhen, PhD, Missouri University of Science and Technology, Assistant Professor of Industrial and Manufacturing Systems Engineering
Jia, Bochen, PhD, Virginia Polytechnic Institute and State University, Assistant Professor of Industrial and Manufacturing Systems Engineering
Kim, Sang-Hwan, PhD, North Carolina State University, Associate Professor of Industrial and Manufacturing Systems Engineering
Kridli, Ghassan, PhD, University of Missouri-Columbia, Professor of Industrial and Manufacturing Systems Engineering
Lee, Cheol, PhD, Purdue University, Associate Professor of Industrial and Manufacturing Systems Engineering
Liu, Yung-Wen, PhD, University of Washington, Associate Professor of Industrial and Manufacturing Systems Engineering
Orady, Elsayed A., PhD, McMaster University, Professor of Industrial and Manufacturing Systems Engineering
Tolbert, DeLean, PhD, Purdue University, Assistant Professor of Industrial and Manufacturing Systems Engineering
Ulgen, Onur, PhD, Texas Technological University, Professor of Industrial and Manufacturing Systems Engineering
Xi, Zhimin, PhD, University of Maryland, Assistant Professor of Industrial and Manufacturing Systems Engineering

Zakarian, Armen, PhD, University of Iowa, Professor of Industrial and Manufacturing Systems Engineering

Zhou, Feng, PhD, Georgia Institute of Technology, Assistant Professor of Industrial and Manufacturing Systems Engineering

Department of Mechanical Engineering

Argento, Alan, PhD, University of Michigan, Professor of Mechanical Engineering

Chakraborty, Nilay, PhD, University of North Carolina, Assistant Professor of Bioengineering

Cherng, John G., PhD, University of Tennessee, Professor of Mechanical Engineering

Ghosh, Gargi, PhD, University of Kentucky, Associate Professor of Bioengineering

Huntley, Hugh, PhD, University of Michigan, Associate Professor of Mechanical Engineering

Jung, Dohoy, PhD, University of Michigan, Associate Professor of Mechanical Engineering

Kanapathipillai, Mathumai, PhD, Iowa State University, Assistant Professor of Bioengineering

Kang, Hong Tae, PhD, University of Alabama, Professor of Mechanical Engineering

Kim, Youngki, PhD, University of Michigan, Assistant Professor of Mechanical Engineering

Li, Ben Q., PhD, University of California-Berkeley, Professor of Mechanical Engineering

Little, Robert E., PhD, University of Michigan, Professor of Mechanical Engineering

Lo, Joe Fu-Jiou, PhD, University of Southern California, Assistant Professor of Bioengineering

Mallick, Pankaj K., PhD, Illinois Institute of Technology, Professor of Mechanical Engineering

Mei, Carole, PhD, University of Auckland, Professor of Mechanical Engineering

Mohanty, Pravansu, PhD, McGill University, Professor of Mechanical Engineering

Ratts, Eric, PhD, Massachusetts Institute of Technology, Associate Professor of Mechanical Engineering

Reyes-Villanueva, German, PhD, University of Liverpool, Associate Professor of Mechanical Engineering

Sengupta, Subrata, PhD, Case Western Reserve University, Professor of Mechanical Engineering

Shim, Taehyun, PhD, University of California-Davis, Professor of Mechanical Engineering

Varde, Keshav S., PhD, University of Rochester, Professor of Mechanical Engineering

Zhang, Yi, PhD, University of Illinois at Chicago, Professor of Mechanical Engineering

Zikanov, Oleg, PhD, Moscow State University, Professor of Mechanical Engineering

Important Academic Policies

Listed below are some important policies affecting College of Engineering and Computer Science students. The CECS Undergraduate Advising website (https://umdearborn.edu/cecs/undergraduate-programs/advising) also contains important policy related information.

Placement Exams

The English Composition Placement Exam is required of all students upon entering UM-Dearborn.

The Mathematics Placement Exam is required of all freshmen before they register for a mathematics course. All transfer students expecting to take precalculus or calculus I are also required to take the mathematics placement exam. CECS students must take and pass the mathematics course into which they place. CECS students who register for a mathematics course other than the course into which they placed will be disenrolled from that course.

The Office of Admissions and Orientation, 313-593-5100, schedules placement exams.

Academic and Grading Policies

Prerequisite courses and co-requisite courses: A student must meet the proper prerequisites and co-requisites to enroll in a course. Prerequisite and co-requisite requirements are listed in this catalog and in the class schedule. This is closely monitored by the College.

Grades: All courses required for CECS students must be taken for a grade. Grades count as part of a CECS student’s grade point average (GPA), except for the grades in ‘additive credit’ courses (ex: courses numbered 001 to 099).

Pass/Fail courses: Students cannot take required CECS courses on an audit or Pass/Fail basis. Any CECS course audited or taken Pass/Fail will not count towards the degree.

Non-Credit Courses: Some courses have been determined as non-credit courses for CECS students, based on course content or similarity to required CECS courses. CECS students cannot use non-credit courses towards their degree. A list of non-credit courses is found in the CECS Undergraduate Student Handbook (https://umdearborn.edu/cecs/undergraduate-programs/advising/current-students).

The D- Repeat Rule: Any course in which a CECS student earns the grade of D- does not carry degree credit. Any course in which a CECS student receives a D- must be repeated and must be passed with a higher grade in order for the course to count toward a CECS degree. This rule applies to all CECS students.

Probation Policy: A student will be placed on academic probation if the student’s overall cumulative GPA, current Major cumulative GPA, or both, drops below 2.0. A student on academic probation who does not earn a passing grade in a prerequisite course for another course, cannot elect the subsequent course without first repeating the prerequisite course.
A student who elects a course without the proper prerequisites, or who needs to repeat the prerequisite because of probation, will be disenrolled from the course.

**Course Registration**

**Changes in Course Elections: Add, Drop, Withdrawal**

Please refer to the Registration section of this Catalog for further information on changes in course elections.

CECS has a policy of required advising for undergraduate students. CECS students meet with their assigned advisor each term prior to registering for classes for the following semester. Upon completion of 44 credit hours, students are assigned a faculty member as their advisor.

**Adding Courses**

Courses that extend over the full term must be elected during the two-week period beginning on the opening day of classes for the term. For seven-week half terms, or other scheduled terms shorter than a normal full term, course elections must be made during the first week of classes.

Late registration of courses is not permitted in most cases. Students are responsible for knowing the registration deadlines each semester.

**Dropping Courses**

Students may drop courses that extend over the full term without academic penalty during the nine-week period beginning on the first day of classes of the term. For seven-week terms, or other scheduled terms shorter than a normal full term, this period will be four weeks. A final grade of E will be recorded for an unofficially dropped course.

In the event of extraordinary circumstances realized subsequent to the stated four- or nine-week periods, a student may petition to drop a course after the regular drop deadline. Late drop petitions, like other petitions, are handled by the CECS Office of Advising and Academic Success (2000 HPEC). A late drop petition will be considered only for important medical or other compelling reasons and not merely because a student is doing poorly in a course.

Students must contact a CECS academic advisor in person to discuss a late drop petition since supporting documentation is always required. Students continue to be registered for a course, and should continue to attend it and do all the assignments, unless and until their late drop petition is approved by the CECS Office of Advising and Academic Success.

**Totally Withdrawing from the Term**

Total Withdrawal: Students may withdraw from all their courses for a given semester up to the last day of classes (NOT the last day of exams). CECS students who are totally withdrawing (from all classes) always need the signature of a CECS academic advisor (Room 2000 HPEC).

**Incomplete Coursework (I) or Absence from Final Examinations (X)**

A CECS student whose term course work (other than the final examination) is incomplete in a minor way may, upon timely completion and approval of the I or X Contract Form, be granted the privilege of completing the course work within a five-week period, beginning on the first day of classes of the immediately following term. If granted this privilege, a mark of I will be recorded on the transcript.

A student who is unavoidably absent from a final examination may, by approval from the course instructor, be granted the privilege of making up the examination within a five-week period, beginning on the first day of classes of the immediately following term. If granted this privilege, a mark of X will be recorded on the transcript.

The I Contract form is obtainable from the CECS Office of Advising and Academic Success, 2000 HPEC. The I or X will remain on the transcript even after the official final letter grade is assigned.

In extenuating circumstances an extension beyond the stated period may be requested by means of a petition submitted to the CECS Office of Advising and Academic Success (2000 HPEC), which must also be approved by the instructor. However, such arrangements for completing the work must be made within the above mentioned five-week period.

Failure to complete the required work or examination within the specified time will result in a mark of I or X being automatically converted to a permanent IE or XE in the transcript, which will count as an E in the student’s grade point average.

**Grading System**

The following (4.0) grading system is used by the CECS:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.4</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.4</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.4</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
</tr>
<tr>
<td>E</td>
<td>0.0</td>
</tr>
<tr>
<td>UE</td>
<td>0.0</td>
</tr>
</tbody>
</table>

The honor points earned in a course are calculated by multiplying the honor points assigned for the grade by the credit hours for the course; e.g., an A grade in a three credit hour course yields 12 honor points. The semester grade point average is calculated by dividing the total honor points earned in a semester by the credit hours earned in that semester. The overall cumulative grade point average is obtained in the same manner with all courses elected at UM-Dearborn included in the calculation.

If any courses were repeated in the Fall 2005 or subsequent semesters, the most recent grade will be used in computing the grade point average, and a maximum of two previous grades in the same course will be excluded from calculation of the grade point average. A given course may be taken a maximum of three times.

Courses in which a mark of S, P, Y, F, or NC is received are not included in grade point average calculations.
Class Standing
The number of credit hours accumulated at the close of a given term determines a student’s class standing.

| Underclassmen | Freshman | 0 to 24 |
|               | Sophomore | 25 to 54 |
| Meidumsen     |          |         |
| Junior        | 55 to 84 |
| Senior        | 85 or more |

Scholastic Standing
In order to attain a BSE or BS degree in CECS, a student must achieve a final overall grade point average of 2.0 or higher for all University of Michigan – Dearborn courses taken. In addition, the student must obtain a grade point average of 2.0 or more for all elected CECS Major courses.

Good Standing
To be in good scholastic standing at the end of any term, a student must have an overall average of 2.0 or higher for all UM-Dearborn courses elected. Additionally, a student must have a 2.0 or above grade point average for all Major courses elected.

Academic Probation
A CECS student will be placed on academic probation if the student’s overall cumulative GPA, current Major cumulative GPA, or both, drops below 2.0. Each individual CECS major has a specific set of courses that factor into the Major grade point average.

It is recommended a student repeat, as early as possible, any required courses in which a D+ or D grade is received in a given term if either the overall GPA or Major GPA falls below 2.0 at the end of that term. Many courses, including Math courses, require a C- grade as a prerequisite to the next course in a sequence.

Any course in which a student received D- must be repeated, even if the course was taken when the student’s overall cumulative GPA, and/or GPA in Major courses, was above 2.0.

Neither credit nor grade points are allowed for a course in which a student received an E grade. Any deficiency of grade points (below 2.0 average) resulting from one or more E grades must be made up while enrolled in this College before the student is restored to good standing. A required course in which a grade of E has been assigned must be repeated on this campus during the student’s next academic term.

Unsatisfactory Performance
The records of CECS students are reviewed at the end of each term by the Academic Standing Committee. Three degrees of scholastic deficiency are used by the Committee to identify a student’s unsatisfactory performance resulting from poor grades: warning, on probation, or required to withdraw.

In cases where the grade average for one term falls below 2.0 while the overall average remains above 2.0, the student normally will receive a warning letter from the Committee.

Probationary status (academic probation) is normally assigned to students who are not in good scholastic standing but whose records indicate a possibility for removal of deficiencies by continued enrollment.

CECS students on academic probation are restricted to registering for no more than 13 credits per semester.

Students whose academic record is poor for two or three successive semesters are subject to being required to withdraw from the College. Students who have been required to withdraw may submit a formal written appeal to be readmitted at a later time, but must, in all cases, have had at least one semester of non-enrollment in CECS for their appeal to be accepted for consideration.

Academic Standing Appeal Procedure
Students who wish to appeal a decision by the Academic Standing Committee requiring them to withdraw may do so by addressing a petition to the Executive Committee (the chief policy body) of the CECS. In all cases, the Executive Committee requires a one-term non-enrollment period, to allow students who have been required to withdraw time to reflect upon their situation, to consider alternatives, and to make plans.

Requirements for Graduation
In order to secure a degree of BSE or BS from the College of Engineering and Computer Science, a student must meet the following requirements:
1. Must have been admitted to a degree program in the CECS.
2. Must satisfactorily complete the specified number of elective and required courses of the specific degree program.
3. Must attain a grade point average of C (2.0) or better for all courses completed at UM-Dearborn.
4. Must achieve a minimum grade average of C (2.0) for all CECS courses completed at UM-Dearborn.
5. Must have completed at least 30 credit hours of upper-level CECS course work at UM-Dearborn of the degree program in which enrolled.
6. Must be enrolled for credit in the CECS during the term in which the requirements for the degree are completed.
7. Must have taken the English Composition Placement Exam and passed the appropriate composition course, as indicated by the results.
8. Must have repeated all courses that needed to be repeated, in accordance with the policies stated above.
9. Must have submitted a diploma application online through UM-Dearborn Connect by the fourth week of the beginning of the term in which the student expects to graduate.

In order to obtain a BSE in an engineering major and a concurrent BSE degree in Engineering Mathematics, or a BS degree and a concurrent degree in CIS Mathematics, the student must complete the specified minimum credit hours of additional and separate courses in advanced mathematics from the choices listed in the Engineering Mathematics degree program or the CIS Mathematics degree program, respectively.

Academic Code of Conduct
The Academic Code of Conduct (ACC) for the University of Michigan-Dearborn is based on the premise that undergraduate and graduate students will perform honestly and ethically on all tests, projects, and assignments. Students are expected to conduct themselves in a manner conducive to an environment of academic integrity and of respect for the educational process. Therefore, an individual should realize that deception for the purpose of individual gain is an offense against the members of the community.
Sanctions for violation of the Academic Code of Conduct may include one or more of the following: a letter of reprimand, reduction in course grade, failure in the course(s), entry of action on the student’s transcript, suspension, expulsion, and recession of a degree.

Familiarization with the code is the responsibility of every student at UM-Dearborn. The Academic Code of Conduct (https://umdearborn.edu/about/policies/academic-code-conduct) can be found on the university policy page.

Changes in Policies and Rules
The College of Engineering and Computer Science reserves the right to effect changes in curricula, policies, and rules. Students should consult with the CECS Office of Advising and Academic Success (2000 Heinz Prechter Engineering Complex) for the applicable rules at the time of admission.

Cooperative Education
The College of Engineering and Computer Science recognizes that experience-based learning, through cooperative education and internship programs, is an integral component to a student’s college experience that provides life-changing learning opportunities. The Cooperative Education Program is an optional program for students who desire paid practical work experiences related to their academic program of study and to their career interest. Co-op students may perform their assignments in alternating semesters of full-time employment and full-time course work, or by completing the co-op assignments in the summer. Students who complete the Cooperative Education program requirements receive recognition on their transcripts.

Cooperative education assignments are supervised by representatives of both the University and the employer. The work experience is considered an integral part of the educational process, and both the College and the participating employer share responsibility for this integration. These assignments can be in-state or out-of-state. Students in the Cooperative Education Program are required to complete a minimum of two-credit hours (two co-op assignments) in order to receive the transcript recognition.

Students in the Computer and Information Science, Cybersecurity and Information Assurance, Data Science, and Software Engineering programs, may use (double count) the cooperative education credit towards fulfilling the basic requirements of their degrees. Students in all other programs in the college may use up to 1 (one) cooperative education credit towards fulfilling the basic requirements of their degree programs.

Students are encouraged to complete a minimum of two full-time work semesters with a participating employer; however, the assignments may be completed with different employers. Students may enroll in up to two academic classes concurrently with their cooperative education assignment.

Student Counseling and Placement
The Director of the CECS Cooperative Education Program counsels co-op students with respect to career interests and aptitudes, and arranges interviews with appropriate cooperating employers. These interviews furnish the opportunity for a professional work assignment that is agreeable to the University, the student and the employer.

Evaluation, Eligibility and Recognition of Achievement
Each student is formally evaluated by the employer. At the end of the cooperative education assignment (end of semester) the participating student submits a technical report to the faculty member responsible for the cooperative education class.

The grade for the cooperative education class is determined based on the quality of the technical report and the employer evaluation (details on the grading rubric will be provided to the students in the cooperative education course syllabus.) If the cooperative education assignment is counted for academic credit toward the degree, it is graded on a scale from A to E. However, if the cooperative education course is completed for additive credit, the assigned grade will be either S for satisfactory or NC (no credit) for unsatisfactory. Failure to submit the report by the due date result in failing the course (receiving a grade of E or NC).

Students are eligible to participate in the Cooperative Education Program by meeting the pre-requisite courses required for enrolling in the cooperative education courses. These pre-requisite courses are specific to the student’s academic program of study. Transfer students are eligible to participate in the Cooperative Education Program once they have completed one semester of enrollment in one of the academic programs offered by the College.

Both the cooperating employers and the University expect that students participating in the Cooperative Education Program will be able to demonstrate a considerable increase in academic knowledge after each term of classroom study. Therefore, participants in the CECS Cooperative Education Program must be full-time students during their alternated class terms; that is, must satisfactorily complete at least 12 credit hours of their degree program course work during each scheduled class term.

To earn cooperative education recognition on their transcripts, students must complete at least two full-time assignments. With prior registration, one cooperative education credit-hour may be earned for each full-time cooperative education assignment. A full-time assignment requires at least 35 hours of work per week for 12 to 15 consecutive weeks.

In engineering programs, with pre-approval by the engineering academic program faculty, one of the cooperative education assignments may also be counted for academic credit (i.e. to satisfy the requirements of the undergraduate degree program.) In such a case, the requirements for the Cooperative Education Program can be fulfilled with only one additional credit hour of cooperative education beyond the requirements of the degree program. In the Computer and Information Science program, the Cybersecurity and Information Assurance program, the Data Science program, and the Software Engineering program, both of the cooperative education assignments may be completed for academic credit towards the undergraduate degree program.

Admission to the Cooperative Program
Students who have completed the pre-requisite courses and have good academic standing, can join the CECS Cooperative Education Program. Typically, students meet these requirements towards the end of their sophomore year. Transfer students admitted to the CECS are eligible to participate in the Cooperative Education Program after completing one semester as a full-time student, or 12 credit hours. A GPA of at least 2.30 is a pre-requisite to admission into the program.

The courses of this basic requirement include the calculus sequence, differential equations, linear algebra, college chemistry, the engineering
defines internships as flexible work experiences performed on part-time opportunities. The College of Engineering and Computer Science (CECS) Internship Program is used for satisfying the requirements of the CECS Cooperative Education Program. CECS Internship Program

- For students majoring in computer and information science, cybersecurity and information assurance, data science, or software engineering, the pre-requisite to the Cooperative Education Program is: Discrete Structures I (CIS 275).
- For students majoring in computer engineering, electrical engineering or robotics engineering, the pre-requisites to the Cooperative Education Program are: (1) Circuits (ECE 210) and (2) Digital Systems (ECE 273).
- For students majoring in industrial and systems engineering or manufacturing engineering, the pre-requisites to the Cooperative Education Program are: (1) C Programming (IMSE 255) and (2) Engineering Probability and Statistics (IMSE 317).
- For students majoring in bioengineering or mechanical, the pre-requisites to the Cooperative Education Program are: (1) Engineering graphics (ENGR 126) and (2) Computer Methods (ENGR 216) and (3) Engineering Materials (ENGR 250), and (4) Thermodynamics (ME 230) or Design Stress Analysis (ME 260).

The purpose of these course requirements is to prepare the co-op student academically for professional work assignments where there will be continual association with practicing engineers in their daily work. Through fulfillment of these requirements the co-op student will have sufficient competence to perform technical work and function as a member of an engineering group.

Registration in the Cooperative Education Program

Each co-op work assignment extends for one term (four months) and occupies the student full-time. From a group of co-op courses available, the co-op student, in consultation with the Director of the CECS Cooperative Education Program, elects a course whose content is appropriate to the level of practice being undertaken that term. Three such registrations are recommended (two are required) for satisfactory completion of the Cooperative Education Program. Since the co-op work assignment occupies the student full-time, enrollment in courses other than the co-op course is strongly discouraged. However, a student on a co-op assignment may register for a maximum of two other courses than the co-op course is strongly discouraged. However, a student on a co-op assignment may register for a maximum of two other courses other than the co-op course is strongly discouraged. However, a student on a co-op assignment may register for a maximum of two other courses during the semester (the recommendation is no more than one course along with the co-op course).

In some instances students may be involved in a cooperative-type educational program prior to their eligibility for and/or acceptance into the Engineering Cooperative Education Program. Such cooperative-type programming might occur either while enrolled at UM-Dearborn or at another educational institution. However, employment completed prior to formal enrollment in the CECS Cooperative Education Program cannot be used for satisfying the requirements of the CECS Cooperative Education Program.

CECS Internship Program

The Cooperative Education Office also provides students with internship opportunities. The College of Engineering and Computer Science defines internships as flexible work experiences performed on part-time basis during the academic year and maybe full-time during the summer. Internships provide valuable work experience, but are performed without supervision of a university representative and students do not receive transcript recognition for their internship work. Like the Cooperative Education assignments, Engineering and Computer Science students are paid by their employers for internship assignments. Since internships are part-time employment, they do not require registration in a special internship course. Furthermore, students may enroll full-time while on internship. However, students pursuing an internship are strongly recommended to discuss their overall workload (academic and employment) with an academic advisor in the Office of Advising and Academic Success.

CECS Experiential Honors Program

The CECS Experiential Honors Program inspires the intellectual and leadership growth of students beyond academics. The program equips students with knowledge and skills that enhance their leadership and their preparedness to meet the challenges of their future engineering careers.

Program Features

The Experiential Honors Program has two groups of elements: An Academic Element and Experiential and Leadership Elements. The Academic Element provides knowledge on design innovation and entrepreneurship. The Experiential and Leadership Elements focus on implementing academic knowledge in professional experience, engineering design, and/or engineering research.

Students will earn recognition for each element of the program by enrolling in a faculty supervised Experiential Honors course associated with the program element. Those who complete 1) the Academic Elements, 2) a faculty supervised internship (ENGR 399), 3) an Experiential Honors Research project, and 4) an Experiential Honors Design project, will receive an Experiential Honors notation on their transcripts upon graduation. It is worth noting that all program requirements can be completed within the academic requirements of the student’s degree program.

Who is eligible to participate?

The program is open to all students at CECS who are in good academic standing and who are interested in extending their educational experience beyond the classroom. The program is open to freshmen and transfer students who have completed at least one semester of study on campus.

Students can join the program by completing an application form indicating their goals, their commitment to achieving these goals and their vision for incorporating the goals into their education. The program is open to all students and has no GPA requirement; however, to receive recognition, the students must accomplish the program elements and spend at least 4 full semesters of active participation.

How to Apply

1. Attend an informational session about the program or meet with the program director.
2. Identify a Faculty Advisor from your academic program who will guide you and mentor you in the Experiential Honors program.
3. Submit the program application by the due date.

For more information, visit https://umdearborn.edu/cecs/undergraduate-programs
Bioengineering

Why Apply to the Program
1. Work on experiential projects that bridge the gap between engineering education and practice.
2. Develop leadership skills.
3. Receive recognition on your transcripts for participating in the program.

Elements of the Program

- **Academic Elements:**
  - Complete at least one of the following courses (3 to 4 credit hours) that may also count as electives in your academic program:
    - ENGR 360 (4 cr. hrs.): Design Innovation: Process, Method and Practice
    - ENT 400 (3 cr. hrs.): Introduction to Entrepreneurship
    - ENGR 400 (3 cr. hrs.): Applied Business Techniques for Engineers

- **Experiential and Leadership Elements:**

Students are expected to enroll in a minimum of one credit hour (ENGR 399, ENGR 492 or ENGR 493) for each semester of active participation of the program. These count toward fulfilling the professional elective requirements of the student’s academic degree.

- Complete a semester long faculty supervised professional experience (ENGR 399, 1 cr. hr.)
- Complete 3 credit hours (1 cr. hr. per semester) in one or both of the following courses:
  - a. Experiential Honors Directed Research Project (ENGR 492, 1 to 3 cr. hrs).
  - b. Complete Experiential Honors Directed Design Project (ENGR 493, 1 to 3 cr. hrs.) for performing hardware or software design for one of the CECS student club teams (e.g. SAE, MASA, etc.). Credit for ENGR 493 can also be earned for completing an industry/community/NGO sponsored “honors” design project.

*The “Honors” Design Project is completed under the guidance of an “expert” who will challenge you to recognize and address global, economic, environmental, and societal impacts and implications of your proposed solution. An acceptable “honors” project is expected to require at least 50 clock hours of additional work during the semester in which the project is completed.

The project approval process involves:

- Identifying a topic of interest
- Identifying a faculty advisor to guide the project (if the topic is outside the expertise of your Experiential Honors Advisor).
- Presenting the outcome of your project at the end of the semester in which the course is taken.
- Submitting a project report that includes a reflection on the project and the lessons learned.

The honors design project may be an expansion of the scope of a senior design project. The credit hours for each activity is determined by the Faculty Advisor based on the effort required to complete the activity.

Study Abroad Opportunities

**Student Exchange Programs with the Jönköping School of Engineering in Jönköping, Sweden and the Ulm University of Applied Sciences in Ulm, Germany**

The College of Engineering and Computer Science offers two study abroad opportunities. Our exchange programs with Ulm University of Applied Sciences in Germany and Jönköping University in Sweden are a great way to gain intercultural experience while fulfilling degree requirements. Students register for a full-time course load and pay their normal UM-Dearborn tuition. All courses are taught in English and designed with exchange students in mind. To maintain full-time status and financial aid, students typically enroll in three technical courses and one language/culture course. Courses taken abroad count toward students’ UM-Dearborn GPA. Students register for courses at UM-Dearborn and pay their normal tuition. There is no extra fee to participate, but students should budget for living expenses, such as housing, food, airfare, and travel. All CECS majors in good academic standing are eligible to apply.

Please contact the Office of Advising and Academic Success to discuss these opportunities with your advisor, or visit the Office of International Affairs for information about additional study abroad programs.

**Prechter International Travel Fellowship**

CECS students may be eligible for a travel fellowship to help defray some of the cost of travel associated with approved international studies. The fellowships are made possible by a gift from Ms. Waltraud Prechter. To apply for this fellowship, students should send a two-page essay explaining their motivation for studying abroad and one letter of recommendation from a professor to the CECS Advising Director, 2000 Heinz Prechter Engineering Complex.

**Career Opportunities**

A wide variety of employment opportunities is available to engineering and computer science graduates, as mentioned above. The University’s Office of Career Services offers numerous services to students and graduates in preparing for careers and in searching for professional employment in a chosen field.

**Student Organizations**

CECS students are involved in a wide variety of student organizations at UM-Dearborn. We have nearly two dozen clubs, teams, and professional organizations that will challenge students to problem solve, make connections, and prepare for a fulfilling career in engineering.

**Bioengineering**

Bioengineering is an emerging branch of engineering that primarily deals with problems of medicine, healthcare, and—in genera—quality of human life. It is a multidisciplinary field that combines scientific principles of biology, chemistry, physics, and mathematics with the best engineering techniques developed in traditional areas (for example, mechanical, electrical, chemical, and computer engineering) and new breakthrough methods developed in recent years.

Activities of bioengineers are widely spread. They use their knowledge to design and build medical instruments, artificial organs, prosthetic limbs, therapeutic devices, and medical imaging equipment. They help doctors to design new medical procedures, including new rehabilitation
techniques. They also assist pharmaceutical and biotechnology industries in developing new, more efficient bioprocessing technologies. Finally, they find solutions for medical and biology-related problems of consumer technology in the areas of safety, ergonomics, and comfort.

Bioengineering is a rapidly growing profession with expanding career opportunities. By virtue of their vigorous cross-training, bioengineers are well-poised for careers in healthcare, medical device production, pharmaceutical industries, and consulting in health-related fields, as well as other positions in industry, education, and government.

**Undergraduate Degree Program**

The undergraduate program in bioengineering provides first a strong foundation in all of the basic ingredients of engineering: the natural and physical sciences, mathematics, a comprehensive socio-economic-cultural background, the behavioral sciences, and finally the basic engineering sciences that begin the development of problem-solving skills.

The program integrates natural sciences with engineering analysis and design concepts to advance the fundamental understanding of biological systems and to develop biology-based technologies with applications across a wide spectrum of societal needs. The bioengineering curriculum is designed to cater to students looking to enter the professional world immediately after earning their undergraduate degree, as well as those who are interested in pursuing graduate studies and research. Various fundamental, design, and application oriented courses (e.g. Biomaterials, Biomechanics, Bioinstrumentation, Biotransport, and Bioprocesses) fulfill industrial needs and help students to perform well in biotech, pharmaceutical, and healthcare industries as engineering professionals. At the same time, the exposure to advanced courses and cross-cutting, state-of-the-art research experiences provide a solid foundation to continue graduate studies and emerge as leaders in science and engineering.

**Program Educational Objectives**

The Program Educational Objectives for the Bachelor of Science in Engineering in Bioengineering are:

- Be successfully employed in their discipline or closely related field, while contributing to the economy and healthcare.
- Continue to enhance their knowledge base and skills, through graduate degrees or other professional developments, to keep abreast of the ongoing changes in technology and health-related disciplines.
- Be well rounded and well suited to work with colleagues and professionals with diverse technical backgrounds and cultures and a wide range of competencies including those related to healthcare.

To achieve the educational objectives, the graduates of the program will have:

a. an ability to apply knowledge of mathematics, sciences and engineering.

b. an ability to design and conduct experiments, as well as to analyze and interpret data.

c. an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

d. an ability to function on multidisciplinary teams.

e. an ability to identify, formulate and solve engineering problems.

f. an understanding of professional and ethical responsibility.

g. an ability to communicate effectively.

h. the broad education necessary to understand the impact of engineering solutions in a global economic, environmental, and societal context.

i. a recognition of the need for, and an ability to, engage in life-long learning.

j. a knowledge of contemporary issues.

k. an ability to use the techniques, skills and modern engineering tools which are necessary for engineering practice.

**Concentration Requirements**

A candidate for the degree Bachelor of Science in Engineering (Bioengineering) is required to pursue scholastic quality and to complete satisfactorily the following program of study:

(128 hours minimum)

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Bioengineering from UM-Dearborn.

**Code** | **Title** | **Credit Hours**
--- | --- | ---
COMP 270 | Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication) |
ECON 201 Prin: Macroeconomics (ECON 201 or 202 also fulfill 3 credits of DDC Social and Behavioral Analysis)
or ECON 202 Prin: Microeconomics

ENGR 100 Intro to Eng and Computers 2
ENGR 126 Engineering Computer Graphics 2
MATH 115 Calculus I 4
MATH 116 Calculus II 4
MATH 205 Calculus III for Engin Students 3
or MATH 215 Calculus III
MATH 216 Intro to Diff Equations 3
MATH 217 Intro to Matrix Algebra 2
or MATH 227 Introduction to Linear Algebra

CHEM 134 General Chemistry IA 8
& CHEM 136 and General Chemistry IIA
BIOL 103 Anatomy and Physiology I 4
BIOL 140 Intro Molec & Cellular Biology 4
General Physics I, II

PHYS 150 General Physics I 8
PHYS 151 General Physics II
ENGR 216 Computer Meth for Engineers 2
ENGR 250 Principles of Eng Materials 3
ME 230 Thermodynamics 4
ME 265 Applied Mechanics 4
ECE 305 Intro to Electrical Eng 4

Professional Subjects and Program Electives
BENG 325 Thermofluid for Bioengineering 4
BENG 351 Bio-Sensors & Instrumentation 4
BENG 370 Biomechanics I 4
BENG 364 Prob&Stat in Bioengineering 3
BENG 375 Biomaterial Tissue Engrg 4
BENG 381 Bioprocessing 4
BENG 4671 Senior Design 4

Bioengineering Design and Electives
Select 19 credits of Design or Upper-Level Tech Elective courses from lists below. At least one course must be a Design Course (3 or 4 credits)
Select one Design Course:
BENG 426 Fundamentals of Drug Delivery
BENG 451 Microfluidics
BENG 460 Nanobiosystems Engineering
BENG 470 Biomechanics II
BENG 481 Biomimetics
IMSE 4675 Six Sigma & Stat Proc Improv
IMSE 4425 Human Factors and Ergonomics
ME 3601 Des and Ana of Mach Elem
BENG 490 Directed Design Project
Upper-Level Tech Electives:
BCHM 370 Principles of Biochemistry
BENG 410 Bioinformatics
BENG 425 Transport in Biosystems
BENG 475 Regenerative Eng
BENG 492 Guided Study in Bioengineering
CHEM 225 Organic Chemistry I
CHEM 226 Organic Chemistry II
CHEM 227 Organic Chemistry Laboratory
CHEM 437 Nano-Biotechnology
ENGR 350 Nanoscience and Nanotechnology
IMSE 421 Eng Economy and Dec Anlys
IMSE 381 Industrial Robots
ME 410 Finite Element Method wth Appl
ME 442 Control Syst Anly and Design
ME 491 Directed Research Problems

Total Credit Hours 107

CIS Mathematics
(Concurrent Degree)

Current CECS undergraduate students majoring in Computer and Information Science (CIS), Cybersecurity and Information Assurance (CIA), or Software Engineering (SE) may pursue a concurrent Bachelor of Science (BS) degree in CIS Mathematics. This makes it possible for CECS students to earn two degrees at the same time: a principal BS degree in CIS, DF, or in SE and a separate concurrent BS degree in CIS Mathematics. Both degrees must be earned at the same time. The courses for the concurrent BS degree in CIS cannot be used as elective credits for the principal degree, but must be taken in addition to the 120-123 credits required for the BS degree in CIS, the BS degree in DF, or the BS degree in SE.

The educational objectives of the concurrent BS program in CIS Mathematics are to prepare graduates to:

1. Be able to develop innovative mathematical solutions to complex computational problems.
2. Engage in continuous learning to advance their professional careers.

The BS in CIS Mathematics degree requires a minimum of thirty credits in mathematics courses, as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>or MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td>2</td>
</tr>
<tr>
<td>CIS 275</td>
<td>Discrete Structures I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

Select a minimum of ten credits from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 315</td>
<td>Applied Combinatorics</td>
<td></td>
</tr>
<tr>
<td>MATH 372</td>
<td>Computing with Mathematica</td>
<td></td>
</tr>
<tr>
<td>MATH 390</td>
<td>Topics in Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 395</td>
<td>Elementary Number Theory</td>
<td></td>
</tr>
<tr>
<td>MATH 404</td>
<td>Dynamical Systems</td>
<td></td>
</tr>
</tbody>
</table>

Fourteen credits of mathematics courses required for the BS degree in CIS, DF or in SE: 1

Select one Design Course:
BENG 426 Fundamentals of Drug Delivery
BENG 451 Microfluidics
BENG 460 Nanobiosystems Engineering
BENG 470 Biomechanics II
BENG 481 Biomimetics
IMSE 4675 Six Sigma & Stat Proc Improv
IMSE 4425 Human Factors and Ergonomics
ME 3601 Des and Ana of Mach Elem
BENG 490 Directed Design Project

Select a minimum of ten credits from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 315</td>
<td>Applied Combinatorics</td>
<td></td>
</tr>
<tr>
<td>MATH 372</td>
<td>Computing with Mathematica</td>
<td></td>
</tr>
<tr>
<td>MATH 390</td>
<td>Topics in Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 395</td>
<td>Elementary Number Theory</td>
<td></td>
</tr>
<tr>
<td>MATH 404</td>
<td>Dynamical Systems</td>
<td></td>
</tr>
</tbody>
</table>
MATH 405  Integral Equations
MATH 412  First Course in Modern Algebra
MATH 413  Linear Algebra
MATH 420  Stochastic Processes
MATH 425  Mathematical Statistics
MATH 451  Advanced Calculus I
MATH 452  Advanced Calculus II
MATH 454  Fourier and Boundary
MATH 455  Func of a Complex Var with App
MATH 462  Mathematical Modeling
MATH 472  Intro to Numerical Analysis
MATH 473  Matrix Computation

Total Credit Hours 30-32

1. Students may elect MATH 227 instead of MATH 217 but only 14 credits from the courses above will count toward the degree.
2. Students may elect MATH 215 instead of MATH 205 but only 6 credits from the courses above will count toward the degree.
3. Calculus III is required for the SE degree and for the CIS-CS option degree; it must also be taken by CIS-IS option students as part of the requirements for the concurrent BS degree in CIS Mathematics.
4. Prior approval needed.
5. Credit for only one course from MATH 413, MATH 513, MATH 523
6. Credit for only one course from MATH 420.
7. Credit for only one course from MATH 455, MATH 555.

The following CECS graduate courses may also be used towards the CIS Mathematics degree: CIS 451, CIS 551, CIS 552; ECE 555, ECE 560, ECE 567, ECE 580; IMSE 505, IMSE 510, IMSE 511; ME 518, ME 519, provided that:

1. a minimum of nine hours is taken from the Mathematics department (MATH) courses in list C above, and
2. permission to take a graduate course is granted.

Computer Engineering

Computers and digital technology have dramatically altered many facets of life including entertainment, manufacturing, transportation, public safety and power production. Computer Engineers have many career opportunities in these areas that will only become more important and prevalent in the future. Most of the modern electronic devices and appliances available today contain advanced computer technology. Video game consoles, for example, utilize very powerful special-purpose computers that receive user input (from the joystick or controller), perform computations to control the game and display high-resolution graphics and sound in real time. Such devices require specialized digital circuits that can process massive amounts of data very efficiently.

Computer engineers use their specialized knowledge to design a variety of systems that integrate how the hardware (electronic circuits and processors) interacts with the software such as C++ or Java to control the system and process inputs from the user. This type of close interaction between hardware and software is essential for many important applications, such as automotive systems, web and GPS-enabled devices, wireless communication, military applications, and medical imaging.

The Computer Engineering program at UM-Dearborn was developed to meet the increasing demand for engineers with knowledge of both hardware design and software development. The program offers a 125-hour curriculum consisting of core courses and technical electives. In addition to in-depth courses in engineering fundamentals, theory, and design principles, students get hands-on experience with the latest hardware and software, such as microprocessor and DSP-based development boards, system-on-a-chip technology, computer networks, and reconfigurable computing. In the junior year, students learn how to design and implement an instruction set and logic functions for a computer. In the senior year, students work on projects in which they design a complete real-world system, from initial specifications to final design, testing, and documentation. Students with an interest in pursuing graduate studies or wish to pursue a research and development career are encouraged to undertake directed research projects under the supervision of faculty advisors for more advanced design experiences.

A unique feature of the Computer Engineering program is the opportunity for students to work concurrently to earn a second degree in Electrical Engineering by taking an additional 16 credit hours of courses. In this case, a student can earn two Bachelor’s Degrees in just 141 credit hours. Since some job listings require a computer engineering background while others require specialization in electrical engineering, a student who pursues the dual degree option is qualified for a much wider variety of engineering positions.

The BSE in Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

Program Educational Objectives

The graduates who receive the BSE degree in Computer Engineering from the University of Michigan-Dearborn are expected to achieve within a few years of graduation the high professional, ethical, and societal goals demonstrated by accomplishing one or more of the objectives described below.

1. Achieve professional growth in an engineering position in regional and national industries. Growth can be evidenced by promotions and appointment in the workplace (management positions, technical specialization), entrepreneurial activities, and consulting activities.
2. Success in advanced engineering studies evidenced by enrollment in graduate courses, completion of graduate degree programs, presentations and publications at professional events, and awards or licences associated with advanced studies.
3. Realization of impactful achievements in societal roles demonstrated by attainment of community leadership roles, mentoring activities, civic outreach service, and active roles in professional societies.

Program Outcomes

The Computer Engineering program is designed to demonstrate that graduates of the program have:

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to work cooperatively on multi-disciplinary projects
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. proficiency in oral and written communications
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a clear understanding that lifelong learning is essential for sustained professional development
j. a knowledge of contemporary issues and its impact on the engineering profession
k. an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

**Concentration Requirements**
*(125 hours minimum)*

**Dearborn Discovery Core Requirement**
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**
Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**
Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Computer Engineering from UM-Dearborn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Eng Students</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>or MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>ECE 276</td>
<td>Discrete Math in Computer Engr</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 276</td>
<td>Discrete Math Meth Comptr Engr</td>
<td></td>
</tr>
<tr>
<td>IMSE 317</td>
<td>Eng Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Applied Business Course**
ENGR 400 | Appl Business Tech for Engr | 3 |

**Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 210</td>
<td>Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ECE 270</td>
<td>Computer Methods in ECE I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 273</td>
<td>Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>ECE 311</td>
<td>Electronic Circuits I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 370</td>
<td>Adv Soft Techn in Comp Engr</td>
<td>4</td>
</tr>
<tr>
<td>ECE 372</td>
<td>Intro to Microprocessors</td>
<td>4</td>
</tr>
<tr>
<td>or ECE 3731</td>
<td>Microproc and Embedded Sys</td>
<td></td>
</tr>
<tr>
<td>ECE 375</td>
<td>Intro to Comp Architecture</td>
<td>4</td>
</tr>
<tr>
<td>ECE 471</td>
<td>Comp Networks/Data Comm</td>
<td>4</td>
</tr>
<tr>
<td>ECE 473</td>
<td>Embedded System Design</td>
<td>4</td>
</tr>
<tr>
<td>ECE 475</td>
<td>Comp Hardware Org/Design</td>
<td>4</td>
</tr>
<tr>
<td>ECE 478</td>
<td>Operating Systems</td>
<td>4</td>
</tr>
<tr>
<td>ECE 4982</td>
<td>Computer Engineering Des I</td>
<td>2</td>
</tr>
<tr>
<td>ECE 4984</td>
<td>Computer Engin Design II</td>
<td>2</td>
</tr>
</tbody>
</table>

**Professional Electives**
Select two courses from the following list: 6-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 3171</td>
<td>Analog &amp; Discrete Sig &amp; Sys</td>
<td></td>
</tr>
<tr>
<td>ECE 387</td>
<td>Digital Forensics I</td>
<td></td>
</tr>
<tr>
<td>ECE 413</td>
<td>Intro to VLSI Design</td>
<td></td>
</tr>
<tr>
<td>ECE 428</td>
<td>Cloud Computing</td>
<td></td>
</tr>
<tr>
<td>ECE 433</td>
<td>Intr to Multimedia Technolgies</td>
<td></td>
</tr>
<tr>
<td>ECE 434</td>
<td>Machine Learning in Engin</td>
<td></td>
</tr>
<tr>
<td>ECE 435</td>
<td>Intro to Mobil/Smrt Dev &amp; Tech</td>
<td></td>
</tr>
<tr>
<td>ECE 438</td>
<td>Web Engr. Prin &amp; Tech</td>
<td></td>
</tr>
<tr>
<td>ECE 467</td>
<td>Digital Forensics II</td>
<td></td>
</tr>
<tr>
<td>ECE 4881</td>
<td>Introduction to Robot Vision</td>
<td></td>
</tr>
</tbody>
</table>

**Approved Professional/Science Electives**
Select 5-7 credit hours 5-7

Please contact the ECE Department for more information on approved electives. Professional and Approved Electives must total a minimum of 13 credits.

**Computer and Information Science**
Computing professionals offer expertise in the effective and efficient use of computers for solving human problems, whether that be as a member
of a project development team, as a builder of powerful and easy-to-use tools, as an individual researcher, or as an educator.

Required courses in the CIS major stress theory and application, as well as the role of other fields such as mathematics, statistics, electrical and computer engineering, business, and software engineering, among others. The curriculum is modeled on the recommendations of the two main professional computing societies, the Association for Computing Machinery (ACM) and the Institute for Electrical and Electronic Engineering (IEEE). Written and oral communications skills are emphasized throughout the program. The use of teamwork on projects is practiced in many courses. Professionalism and ethics are also stressed for future computing professionals. The CIS courses include software engineering, algorithm analysis, networking, security, programming languages, game design, computer architecture, data structures, operating systems, artificial intelligence, database management systems, graphics, information systems, robotics, web development and capstone design courses.

The CIS curricula prepare students to begin careers as computing professionals or to pursue graduate study in the field. The BS in Computer and Information Science program is accredited by the Computing Accreditation Commission of ABET, www.abet.org (http://www.abet.org)

A candidate for the degree of BS in CIS is required to select one of two concentrations: Computer Science or Information Systems. A BS in Software Engineering is also offered. Both programs encourage innovation on the part of students, prepare students for graduate education, train students to communicate effectively, and provide students with the tools needed to become leaders in their profession.

The Computer Science concentration emphasizes understanding how computer systems work, as well as their uses as critical components in other disciplines, and prepares its graduates for positions in systems programming, scientific programming, networks, game programming, web technology, graphics and visualization, and enterprise computing among others.

The Information Systems concentration is oriented toward the design and development of computer information systems. It includes more business-related courses than the computer science concentration, and prepares graduates for positions in applications programming, database management, information systems design, and information engineering, among others.

Program Objectives

1. Our graduates will be successfully employed in computer science–related fields or other career paths, including industrial, academic, governmental, and non-governmental organizations, or will be successful graduate students in a program preparing them for such employment.
2. Our graduates will lead and participate in culturally diverse teams, becoming global collaborators.
3. Our graduates will continue their professional development by obtaining continuing education credits, professional registration or certifications, or post-graduate study degrees.

Computer Science Program Outcomes

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline;
b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
c. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;
d. An ability to function effectively on teams to accomplish a common goal;
e. An understanding of professional, ethical, legal, security, and social issues and responsibilities;
f. An ability to communicate effectively with a range of audiences;
g. An ability to analyze the local and global impact of computing on individuals, organizations, and society;
h. A recognition of the need for, and an ability to engage in, continuing professional development;
i. An ability to use current techniques, skills, and tools necessary for computing practices;
j. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
k. An ability to apply design and development principles in the construction of software systems of varying complexity.
l. An ability to program.

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a B.S. degree in Computer and Information Science from UM-Dearborn.
## General Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics (ECON 201 or 202 also fulfill 3 credits of DDC Social and Behavioral Analysis)</td>
<td></td>
</tr>
</tbody>
</table>

or ECON 202 Prin: Microeconomics

### Mathematics and Statistics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; MATH 116</td>
<td>and Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra (Not to be taken by Information Systems Concentrators)</td>
<td>2-3</td>
</tr>
<tr>
<td>or MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>CIS 275</td>
<td>Discrete Structures I</td>
<td>4</td>
</tr>
<tr>
<td>IMSE 317</td>
<td>Eng Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

### Laboratory Science Sequence

Select one from the following: 8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
</tr>
<tr>
<td>&amp; BIOL 140</td>
<td>and Intro Molec &amp; Cellular Biology</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry I A</td>
</tr>
<tr>
<td>&amp; CHEM 136</td>
<td>and General Chemistry IIA</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
</tr>
<tr>
<td>&amp; CHEM 146</td>
<td>and General Chemistry IIB</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
</tr>
<tr>
<td>&amp; GEOL 218</td>
<td>and Historical Geology</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
</tr>
<tr>
<td>&amp; PHYS 126</td>
<td>and Introductory Physics II</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
</tr>
<tr>
<td>&amp; PHYS 151</td>
<td>and General Physics II</td>
</tr>
</tbody>
</table>

### CIS Core

Seven computer and information science courses are required of Computer Science concentrators: 28

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 150</td>
<td>Computer Science I</td>
</tr>
<tr>
<td>CIS 200</td>
<td>Computer Science II</td>
</tr>
<tr>
<td>CIS 310</td>
<td>Computer Org and Assembly Lang</td>
</tr>
<tr>
<td>CIS 350</td>
<td>Data Struct and Algorithm Anlys</td>
</tr>
<tr>
<td>CIS 375</td>
<td>Software Engineering I</td>
</tr>
<tr>
<td>CIS 427</td>
<td>Comp Networks and Dis Process</td>
</tr>
<tr>
<td>CIS 450</td>
<td>Operating Systems</td>
</tr>
</tbody>
</table>

### CISC required

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 297</td>
<td>Intro to C Sharp</td>
</tr>
<tr>
<td>or CIS 296</td>
<td>Java Programming</td>
</tr>
<tr>
<td>CIS 405</td>
<td>Algorithm Analysis &amp; Design</td>
</tr>
<tr>
<td>or CIS 479</td>
<td>Intro to Artificial Intel</td>
</tr>
</tbody>
</table>

Two Intersections Courses (from below): 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 479</td>
<td>Intro to Artificial Intel (If CIS 479 also selected above, an additional Tech Elective is required)</td>
</tr>
<tr>
<td>ENGR 400</td>
<td>Appl Business Tech for Engr</td>
</tr>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking&amp;Behav</td>
</tr>
<tr>
<td>IMSE 421</td>
<td>Eng Economy and Dec Anlys</td>
</tr>
<tr>
<td>CIS 4951</td>
<td>Design Seminar I</td>
</tr>
<tr>
<td>CIS 4952</td>
<td>Design Seminar II</td>
</tr>
</tbody>
</table>

### Technical CISC Electives

Select from the following: 18

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 285</td>
<td>Software Engineering Tools</td>
</tr>
<tr>
<td>CIS 376</td>
<td>Software Engineering II</td>
</tr>
<tr>
<td>CIS 381</td>
<td>Industrial Robots</td>
</tr>
<tr>
<td>CIS 387</td>
<td>Digital Forensics I</td>
</tr>
<tr>
<td>CIS 405</td>
<td>Algorithm Analysis &amp; Design</td>
</tr>
<tr>
<td>CIS 421</td>
<td>Database Mgmt Systems</td>
</tr>
<tr>
<td>CIS 423</td>
<td>Dec Support and Exp Systems</td>
</tr>
<tr>
<td>CIS 425</td>
<td>Information Systems</td>
</tr>
<tr>
<td>CIS 435</td>
<td>Web Technology</td>
</tr>
<tr>
<td>CIS 436</td>
<td>Mobile App Des &amp; Impl</td>
</tr>
<tr>
<td>CIS 437</td>
<td>Advanced Networking</td>
</tr>
<tr>
<td>CIS 447</td>
<td>Intro Computr &amp; Ntwrk Security</td>
</tr>
<tr>
<td>CIS 451</td>
<td>Computer Graphics</td>
</tr>
<tr>
<td>CIS 452</td>
<td>Inf Vis &amp; Multimedia Gaming</td>
</tr>
<tr>
<td>CIS 467</td>
<td>Digital Forensics II</td>
</tr>
<tr>
<td>CIS 474</td>
<td>Compiler Design</td>
</tr>
<tr>
<td>CIS 476</td>
<td>Soft Arch &amp; Design Patterns</td>
</tr>
</tbody>
</table>
### Concentration Requirements for Information Systems Concentrators

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization (Also fulfills 3 credits of DDC Social and Behavioral Analysis)</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 3005</td>
<td>Intro to Operations Research</td>
<td>4</td>
</tr>
<tr>
<td>CIS 150</td>
<td>Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 200</td>
<td>Computer Science II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 310</td>
<td>Computer Org and Assembly Lang</td>
<td>3</td>
</tr>
<tr>
<td>CIS 350</td>
<td>Data Struc and Algorithm Anlys</td>
<td>3</td>
</tr>
<tr>
<td>CIS 375</td>
<td>Software Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 427</td>
<td>Comp Networks and Dis Process</td>
<td>3</td>
</tr>
<tr>
<td>CIS 450</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Business and Operational Research

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 298</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>OB 354</td>
<td>Behavior in Organization (Also fulfills 3 credits of DDC Social and Behavioral Analysis)</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 3005</td>
<td>Intro to Operations Research</td>
<td>4</td>
</tr>
</tbody>
</table>

#### CIS Core

Seven computer and information science courses are required of Information Science concentrators:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 150</td>
<td>Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 200</td>
<td>Computer Science II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 310</td>
<td>Computer Org and Assembly Lang</td>
<td>3</td>
</tr>
<tr>
<td>CIS 350</td>
<td>Data Struc and Algorithm Anlys</td>
<td>3</td>
</tr>
<tr>
<td>CIS 375</td>
<td>Software Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 427</td>
<td>Comp Networks and Dis Process</td>
<td>3</td>
</tr>
<tr>
<td>CIS 450</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

#### CIS Information Systems Programming Language

One of the following two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 296</td>
<td>Java Programming</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 297</td>
<td>Intro to C Sharp</td>
<td></td>
</tr>
</tbody>
</table>

#### CIS Information Systems Required

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 421</td>
<td>Database Mgmt Systems</td>
<td>4</td>
</tr>
<tr>
<td>CIS 425</td>
<td>Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>CIS 476</td>
<td>Soft Arch &amp; Design Patterns</td>
<td>3</td>
</tr>
</tbody>
</table>

Two Intersections Courses (From below)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 479</td>
<td>Intro to Artificial Intel</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 400</td>
<td>Appl Business Tech for Engr</td>
<td>3</td>
</tr>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking&amp;Behav</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 421</td>
<td>Eng Economy and Dec Anlys</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4951</td>
<td>Design Seminar I</td>
<td>2</td>
</tr>
<tr>
<td>CIS 4952</td>
<td>Design Seminar II</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Technical CIS Information Systems Electives

Select 11 credit hours:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 285</td>
<td>Software Engineering Tools</td>
<td>3</td>
</tr>
<tr>
<td>CIS 306</td>
<td>Discrete Structures II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 376</td>
<td>Software Engineering II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 381</td>
<td>Industrial Robots</td>
<td>4</td>
</tr>
<tr>
<td>CIS 387</td>
<td>Digital Forensics I</td>
<td>4</td>
</tr>
<tr>
<td>CIS 400</td>
<td>Programming Languages</td>
<td>4</td>
</tr>
<tr>
<td>CIS 405</td>
<td>Algorithm Analysis &amp; Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS 435</td>
<td>Web Technology</td>
<td>4</td>
</tr>
<tr>
<td>CIS 437</td>
<td>Advanced Networking</td>
<td>4</td>
</tr>
<tr>
<td>CIS 447</td>
<td>Intro Computr &amp; Ntwrk Security</td>
<td>4</td>
</tr>
<tr>
<td>CIS 451</td>
<td>Computer Graphics</td>
<td>4</td>
</tr>
<tr>
<td>CIS 452</td>
<td>Inf Vis &amp; Multimedia Gaming</td>
<td>4</td>
</tr>
<tr>
<td>CIS 467</td>
<td>Digital Forensics II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 474</td>
<td>Compiler Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS 479</td>
<td>Intro to Artificial Intel</td>
<td>4</td>
</tr>
<tr>
<td>CIS 487</td>
<td>Computer Game Design &amp; Implem</td>
<td>4</td>
</tr>
<tr>
<td>CIS 488</td>
<td>Computer Game Design II</td>
<td>4</td>
</tr>
<tr>
<td>CCM 404</td>
<td>Dynamical Systems</td>
<td>4</td>
</tr>
<tr>
<td>CCM 472</td>
<td>Intro to Numerical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CCM 473</td>
<td>Matrix Computation</td>
<td>4</td>
</tr>
<tr>
<td>ECE 372</td>
<td>Intro to Microprocessors</td>
<td>4</td>
</tr>
<tr>
<td>ECE 473</td>
<td>Embedded System Design</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 400</td>
<td>Appl Business Tech for Engr</td>
<td>4</td>
</tr>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking&amp;Behav</td>
<td>4</td>
</tr>
</tbody>
</table>

#### General Electives

Select four credit hours:

Any for-credit courses; that is, courses not on the No Credit list, which is found at the end of the CECS Student Handbook.

### Concentration Requirements for Game Design Concentrators

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>4</td>
</tr>
<tr>
<td>&amp; ASTR 131</td>
<td>and Introductory Astronomy Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 218</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 126</td>
<td>Introductory Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Natural Science

Four additional science credits from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 130</td>
<td>Introduction to Astronomy</td>
<td>4</td>
</tr>
<tr>
<td>ASTR 131</td>
<td>and Introductory Astronomy Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Intro Org and Environ Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Intro Molec &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 134</td>
<td>General Chemistry IA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 136</td>
<td>General Chemistry IIA</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 225</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 218</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 126</td>
<td>Introductory Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>
| Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 306</td>
<td>Discrete Structures II</td>
<td>4</td>
</tr>
</tbody>
</table>
**CIS Core**

Seven computer and information science courses are required of which 28 hours at the 300 or 400 level approved by the student’s faculty advisor include CIS 150, CIS 200, CIS 275, CIS 350 and eight additional credit hours at the 300 or 400 level approved by the student’s faculty advisor in CIS. An introduction to calculus (MATH 115) is required and does not count toward the 24 hours. Completion of MATH 116 is strongly recommended.

**Data Science**

With increasing availability of data, companies, governments, and nonprofits alike are striving to convert information into actionable information and insight. In the past, students trained in singular disciplines such as computer science, operations research, or statistics had the skill set needed to analyze the required data. But the “volume”, “velocity” and “variety” of today’s data and future data streams pose unique challenges and also creates unique opportunities. Present data sets requires more programming, mathematic/statistics, modeling skills, and domain knowledge than a traditional undergraduate curriculum offers. In fact, one of the obstacles that must be removed before government, business and social sectors are prepared to use large datasets to enhance their decision-making, is the acquisition of a trained workforce that can leverage it.

Decision makers require data and evidence before resources are committed. In the current environment, commitments are not made unless evidence supports that the opportunities are both cost effective and yield positive net benefits. Healthcare practitioners seek evidence-based medicine; social scientists engage in impact assessments; business analysts practice decision science and engineers and computer scientists desire facility with big data sets using a variety of statistical techniques.

The University of Michigan-Dearborn, with its strong Engineering, Mathematics, Social and Behavioral Sciences, and Business Management programs is in a strategic position to enhance both undergraduate and graduate education with data science course offerings and a data science major. UM-Dearborn’s recent addition of the Department of Health and Human Services is also uniquely positioned in time, developmental stage, and location, to benefit from data science offerings. In other words, a case could be made for data science programming that enhances student education and marketability in all four of UM-Dearborn’s Colleges—the College of Engineering; the College of Arts, Sciences and Letters; the College of Business and the newly formed College of Education, Health and Human Services.

The Data Science degree is housed within the College of Engineering and Computer Science. The interdisciplinary nature of this degree program will require resources from all academic units, namely the College of Business, the College of Engineering and Computer Science, the College of Arts, Sciences, and Letters and the College of Education, Health, and Human Services. Students in this program will take courses and be involved with scholarly activity from a number of departments and disciplines across campus including Management Studies, Computer and Information Science, and Health and Human Services, Behavioral Science, Social Science as well as the Mathematics and Engineering disciplines.

This program requires technical courses from each college on our campus and is highly multidisciplinary. Taking a multidisciplinary approach, the curriculum is designed to leverage existing courses on campus and combine these with foundational courses in data science. This creates synergy among academic units on campus, provides flexibility in scheduling, and allows for timely completion of the program. Students with varied backgrounds can take different courses to suit their needs, based on interest and guided by faculty advisors.

---

1. Any for-credit courses; that is, courses not on the No Credit list, which is found at the end of the CECS Student Handbook.

**Minor in Computer and Information Science**

The minor in CIS requires a minimum of 24 credit hours, which must include CIS 150, CIS 200, CIS 275, CIS 350 and eight additional credit hours at the 300 or 400 level approved by the student’s faculty advisor in CIS. An introduction to calculus (MATH 115) is required and does
Concentration Requirements
A candidate for the degree Bachelor of Science in Data Science is required to pursue scholastic quality and to complete satisfactorily the following program of study:

(120 hours minimum)

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)
In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a B.S. degree in Data Science from UM-Dearborn.

General Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basic Requirements</td>
<td></td>
</tr>
<tr>
<td>CIS 1501</td>
<td>CS I for Data Scientists</td>
<td>4</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science</td>
<td></td>
</tr>
<tr>
<td>Two courses, 7 credits, one of which is a laboratory course. Please consult the Dearborn Discovery Core.</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethics</td>
<td></td>
</tr>
</tbody>
</table>

HHS 470 Information Science and Ethics 3

Business Course
ENGR 400 Appl Business Tech for Engr 3
or ENT 400 Entrepreneurial Thinking & Behav

Data Science Applications
Students should complete 18 credit hours in one of the following analytics areas listed below. In addition, at least half of the elected courses selected should be designated as being in the analytics domain. Application area courses must be approved in advance by Department Chair.

Applied Social and Behavioral Science Analytics
Take an additional 18 credits from any of the following: Political Science, Economics, History, Criminal Justice, Sociology, Anthropology, and Psychology. Students must meet the prerequisites for each course. In addition, the 18 disciplinary credits must have the same prefix, e.g. POL, ECON, HIST, CRJ, SOC, ANTH, or PSYC. As an exception, a student may substitute 6 credits of GIS for 6 of the discipline specific credits.

Business Analytics
Take DS 310 (3) Data Mining for Business Intelligence, plus 15 credit hours in one of the following: Accounting, Finance, Technology Management, and Supply Chain Management. Students must meet the prerequisites for the course. In addition, the additional 15 credit hours must have the same prefix, e.g. ACC, FIN, MKT, ITM, or OM)

Computational Analytics
Take an additional 18 credit hours from courses focusing on Applied Statistics, Mathematics or from CECS. The proposed coursework must be approved by a faculty advisor in the Department of Mathematics or CECS, respectively, prior to enrollment in the course.

Health and Medicine Analytics
Take an additional 18 credit hours from courses focusing on health and medicine. The proposed coursework must be approved by a faculty advisor in the Department of Health and Human Services prior to enrollment in the course.

Data Science Core
CIS 2001 CS II for Data Scientists 4
CIS 275 Discrete Structures I 4
or ECE 276 Discrete Math in Computer Engr 4
or MATH 276 Discrete Math Meth Comptr Engr 4
CIS 350 Data Struct and Algorithm Anlys 4
ECE 3100 Data Science I 4
CIS 3200 Data Science II 4
CIS 3200 Data Science II 4
CIS 422 Massive Data Management 4
STAT 305 Intro. to Data Science 3
IMSE 317 Eng Probability and Statistics 3
or STAT 325 Applied Statistics I 3
STAT 326 Applied Statistics II 3
STAT 430 Applied Regression Analysis 3

Data Science Capstone
CIS 4971 Cap Sem for Data Sci I 2
CIS 4972 Cap Proj for Data Sci II 2

Data Science Electives 6-8
Choose 6-8 credits from list below
CIS 306 Discrete Structures II
Electrical Engineering is the field that deals with the study and application of electricity, electronics and electromagnetism. An early application of the technology was energy conversion using motors and generators to convert one form of energy to another. As the technology advanced, devices that could amplify and process signals were developed which provided the foundation for modern electronics. Modern electronic devices can perform high-speed computations and process information in a wide variety of formats. These technological advancements require high-speed electronic circuits and devices developed by electrical engineers. They have the specialized knowledge required to design circuits and systems to perform a variety of functions, such as store electrical energy (batteries and power electronics), control of electric vehicles, transmit signals and information through wires (cable TV) or free space (TV, AM and FM radio, satellite, and dish networks), provide automatic control of mechanical systems (cruise control, braking, target tracking and factory automation), enable communication between devices (internet, web, cell phones), process digital signals (microprocessors, digital signal processing algorithms and hardware), and ensure safety and performance of complex systems (electromagnetic compatibility).

A unique feature of the Electrical Engineering program is the opportunity for students to work concurrently to earn a second degree in Computer Engineering by taking an additional 16 credit hours of courses. In this case, a student can earn two Bachelor’s Degrees in just 141 credit hours. Some employment listings require a computer engineering background while others call for specialization in electrical engineering. A student who pursues the dual degree option is qualified for both types of positions and therefore has a distinct advantage in securing employment.

The BSE in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

Program Educational Objectives

The graduates who receive the BSE degree in Electrical Engineering from the University of Michigan-Dearborn are expected to achieve within a few years of graduation the high professional, ethical, and societal goals demonstrated by accomplishing one or more of the objectives described below.

1. Achieve professional growth in an engineering position in regional and national industries. Growth can be evidenced by promotions and appointment in the workplace (management positions, technical specialization), entrepreneurial activities, and consulting activities.
2. Success in advanced engineering studies evidenced by enrollment in graduate courses, completion of graduate degree programs, presentations and publications at professional events, and awards or licences associated with advanced studies.
3. Realization of impactful achievements in societal roles demonstrated by attainment of community leadership roles, mentoring activities, civic outreach service, and active roles in professional societies.

Program Outcomes

The Electrical Engineering program is designed to demonstrate that graduates of the program have:

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to work cooperatively on multi-disciplinary projects
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. proficiency in oral and written communications
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a clear understanding that lifelong learning is essential for sustained professional development
j. a knowledge of contemporary issues and its impact on the engineering profession
k. an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Concentration Requirements

(125 hours minimum)

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours.
within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

- Natural Science (GENS) – 7 Credits (p. 17)
  - Lecture/Lab Science Course
  - Additional Science Course
- Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
- Humanities and the Arts (GEHA) – 6 Credits (p. 19)
- Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

- Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Electrical Engineering from UM-Dearborn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics (ECON 201 or 202 also fulfill 3 credits of DDC Social and Behavioral Analysis)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or ECON 202 Prin: Microeconomics</td>
<td></td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>0.4</td>
</tr>
<tr>
<td>or CHEM 134</td>
<td>General Chemistry IA</td>
<td></td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>Upper level physics</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PHYS 305</td>
<td>Contemporary Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 314</td>
<td>Computational Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 320</td>
<td>Environmental Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 403</td>
<td>Electricity and Magnetism</td>
<td></td>
</tr>
<tr>
<td>PHYS 405</td>
<td>Optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 406</td>
<td>Thermal and Statistical Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 416</td>
<td>Biological Physics</td>
<td></td>
</tr>
<tr>
<td>IMSE 317</td>
<td>Eng Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Applied Business Course**

- ENGR 400 Appl Business Tech for Engr 3

**Core Courses**

- ECE 210 Circuits 4
- ECE 270 Computer Methods in ECE I 4
- ECE 273 Digital Systems 4
- ECE 311 Electronic Circuits I 4
- ECE 3171 Analog & Discrete Sig & Sys 4
- ECE 372 Intro to Microprocessors 4
  or ECE 3731 Microproc and Embedded Sys 3
  or ECE 3851 Intro Elect Materials & Device 3
- ECE 450 Analog and Digital Comm Sys 4
- ECE 460 Automatic Control Systems 4
- ECE 480 Intro to Dig Signal Processing 4
- ECE 4951 Sys Design and Microcontrollers 3
- ECE 4981 Electrical Engineering Des I 2
- ECE 4983 Electrical Engin Design II 2

**Professional Electives**

Select two courses from the following list: 7-8

- ECE 319 Electromagnetic Compatibility 4
- ECE 413 Intro to VLSI Design 4
- ECE 414 Electronic Systems Design 4
- ECE 415 Power Electronics 4
- ECE 435 Intro to Mobil/Smrt Dev & Tech 4
- ECE 4361 Electric Machines and Drives 4
- ECE 443 Instr Electric Power Systems 4
  or ECE 4432 Renewable Elec Pwr Sys 4
- ECE 4881 Introduction to Robot Vision 4

**Approved Technical Electives**

Select 8-9 credit hours from approved list. 8-9

Please contact the ECE Department for more information on approved electives. Professional and Technical Electives must total a minimum of 16 credits.

**Dual Degree in EE/CE**

Students must take 16 hours beyond the 125 hours needed for the EE or CE degree for a total of 141 hours. For a second degree in EE, CE students should take the EE Core courses: ECE 3171, ECE 385, ECE 450, ECE 460, ECE 480, and ECE 4951. For a second degree in CE, EE students should take the CE Core courses: ECE 370, ECE 375, ECE 471, ECE 473, ECE 475, and ECE 478.

**Engineering Mathematics**

(Concurrent Degree)

The BSE in engineering mathematics program at UM-Dearborn provides students an opportunity to expand their knowledge in the field of applied mathematics, which is essential in modern engineering. By combining the tools and techniques learned in the engineering mathematics program with those learned in their engineering disciplines, students become more proficient in the application of mathematical reasoning to formulate and
solve a wide range of contemporary engineering problems. The combined mathematics and engineering education gained through the program enables the graduates to successfully pursue professional careers in industry, research and development, and elsewhere.

The Engineering Mathematics degree is a concurrent Bachelor of Science in Engineering (B.S.E.) degree in Engineering Mathematics (EMATH) that can be pursued by undergraduate students majoring in Bioengineering, Computer Engineering, Electrical Engineering, Industrial and Systems Engineering, Manufacturing Engineering, Mechanical Engineering, or Robotics Engineering. This makes it possible for a student majoring in one of the engineering disciplines to earn two degrees at the same time: a B.S.E. degree in their principal engineering major and a concurrent B.S.E. degree in Engineering Mathematics. Both degrees must be earned at the same time.

Educational Objectives
The coursework in the concurrent BSE program in Engineering Mathematics prepares graduates to:

1. Be able to develop innovative mathematical solutions to complex engineering problems.
2. Engage in continuous learning to advance their professional careers.

Program Outcomes
1. The ability to apply mathematical tools to model and solve engineering/applied mathematics problems
2. The ability to use techniques and modern mathematical tools to solve engineering/applied mathematics problems.
3. The ability to communicate mathematical ideas.

The Engineering Mathematics degree requires a minimum of 15 credit hours of course work in advanced mathematics beyond the 16 credits of mathematics already required in the degree program of the student’s principal engineering major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 462</td>
<td>Mathematical Modeling</td>
<td></td>
</tr>
<tr>
<td><strong>Choose 3 course from one of the following two areas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area 1 Numerical and Statistical Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 420/ ECE 555</td>
<td>Stochastic Processes 1</td>
<td>1</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>MATH 472</td>
<td>Intro to Numerical Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 473</td>
<td>Matrix Computation</td>
<td></td>
</tr>
<tr>
<td>Area 2: Modern and Classical Applied Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 404</td>
<td>Dynamical Systems</td>
<td></td>
</tr>
<tr>
<td>MATH 454</td>
<td>Fourier and Boundary</td>
<td></td>
</tr>
<tr>
<td>MATH 455</td>
<td>Func of a Complex Var with App</td>
<td></td>
</tr>
<tr>
<td>MATH 458</td>
<td>Introduction to Wavelets</td>
<td></td>
</tr>
<tr>
<td>MATH 516</td>
<td>Fin Elemnt Meth for Diff Equat 1</td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics Elective</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Take one additional course from Area (1) or Area (2), OR one of the following courses:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECE 3100</td>
<td>Data Science I</td>
<td></td>
</tr>
<tr>
<td>CIS 3200</td>
<td>Data Science II</td>
<td></td>
</tr>
<tr>
<td>ECE 567</td>
<td>Nonlinear Control Systems 1</td>
<td></td>
</tr>
<tr>
<td>IMSE 505</td>
<td>Optimization 1</td>
<td></td>
</tr>
<tr>
<td>IMSE 511</td>
<td>Design and Analysis of Exp 1</td>
<td></td>
</tr>
<tr>
<td>MATH 523</td>
<td>Linear Algebra w/Applications 1</td>
<td></td>
</tr>
<tr>
<td>MATH 514</td>
<td>Fin Diff Meth for Diff Equat 1</td>
<td></td>
</tr>
<tr>
<td>ME 518</td>
<td>Advanced Engineering Analysis 1</td>
<td></td>
</tr>
<tr>
<td>ME 519</td>
<td>Basic Comp Methods in Eng 1</td>
<td></td>
</tr>
</tbody>
</table>

1 Permission of graduate instructor required. Graduate tuition assessment applies.

Industrial and Systems Engineering
Industrial and systems engineering is concerned with the study and design of integrated systems of people, materials, equipment and their interaction with the surrounding environment. Historically, this field developed in the manufacturing industries where industrial engineers applied their engineering knowledge and management techniques to design and efficiently operate industrial and business systems. But the advent of the modern information technology enabled industrial engineers to apply their quantitative methods and organizational skills to a multitude of large-scale systems in addition to industrial systems. Today, industrial and systems engineers are being called upon, with increasing frequency, to design and improve the performance of systems in a wide spectrum of fields such as service, energy, transportation, finance, and health care. Thus, their scope is not limited to tackling industrial problems alone, but extends to finding solutions for the endless variety of problems of modern industrial society.

The field of study bridges engineering knowledge, management principles, physical and social sciences, and the life sciences. Simply put, it stresses the scientific and technological approach to the design, development, and the optimal operation of both large-scale and small-scale systems. The industrial and systems engineer is a versatile expert whose talents are vigorously sought, and will be for a long time to come, by various sectors of society.

Undergraduate Degree Program
The undergraduate program in industrial and systems engineering provides first a strong basis in the foundations of engineering: natural and physical sciences, mathematics, socioeconomic-cultural background, the behavioral sciences and the basic engineering sciences which begin the emphasis on problem solving. Then, the program develops the intermediate bases on which industrial systems and other systems engineering work is founded. This includes studies in production and operations management, lean concepts, quality engineering methods system modeling, simulation and optimization, organization and decision theory, and human factors engineering. Contemporary operations research methods are progressively developed and applied through systems-design case studies ending with a capstone design experience.

The BSE in Industrial and Systems Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

An unusual opportunity is available to obtain considerable practical expertise in the student’s specialty for those who elect the internship option.

Students who do well in their undergraduate program are encouraged to consider graduate work and may take some of their electives in preparation for graduate study. Information and assistance regarding
fellowships and assistantships for graduate study may be obtained from the department chairperson.

Industrial and Systems Engineering majors may also pursue a dual BSE degree in Manufacturing Engineering and thus can earn two BSE degrees at the same time:
- BSE degree in Industrial and Systems Engineering
- BSE degree in Manufacturing Engineering.

This requires a minimum of 15 credits of additional and separate courses beyond the 128 credits required for a BSE in Industrial and Systems Engineering alone. Both degrees must be earned at the same time.

**Educational Objectives of the BSE (Industrial and Systems Engineering) Program**

Consistent with providing a strong academic foundation in the field of Industrial and Systems Engineering, the program educational objectives for our graduates are:
- To remain gainfully employed in Industrial and Systems Engineering related fields,
- To continue to develop professionally, and
- To serve in leadership roles.

**Program Outcomes**

To achieve the educational objectives, the graduates of the program will have:

1. an ability to apply knowledge of mathematics, sciences and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component or process to meet desired needs
4. an ability to function on multidisciplinary teams
5. an ability to identify, formulate and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global and societal context
9. a recognition of the need for, and an ability to, engage in lifelong learning and graduate studies
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

**Major Requirements**

A candidate for the degree Bachelor of Science in Engineering (Industrial and Systems Engineering) is required to pursue scholastic quality and to complete satisfactorily the following program of study:

(128 hours minimum)

**Dearborn Discovery Core Requirement**

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**

Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**

Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Industrial and Systems Engineering from UM-Dearborn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics (ECON 201 or 202 also fulfill 3 credits of DDC Social and Behavioral Analysis)</td>
<td></td>
</tr>
<tr>
<td>or ECON 202Prin: Microeconomics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>ENGR 126</td>
<td>Engineering Computer Graphics</td>
<td>2</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 146</td>
<td>General Chemistry IIB</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 103</td>
<td>Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Programming and Core Engineering
Manufacturing Engineering

Manufacturing Engineering is concerned with designing, building, planning, operating, and managing economical production systems for discrete manufacturing. Manufacturing engineers need to have a thorough knowledge of materials and manufacturing processes. They should also be able to design, operate and manage integrated systems that include people, materials, machine tools, material handling equipment, robots, quality measuring equipment, controls and computers.

Traditionally, there has been a strong division between manufacturing engineering and design engineering. Today, however, the boundary between these two functions is narrowing. Both groups work together in teams to assure soundness of design and manufacturability of the product. Manufacturing engineers must understand engineering materials and design besides having expertise in manufacturing tooling and processes, systems and technology. They design and evaluate the capabilities of manufacturing tools and processes, and interact with design engineers during the development of product specifications and tolerances.

Today’s manufacturing equipment is becoming increasingly computer-based. Manufacturing engineers must have a working knowledge of programmable equipment, as well as its interfaces with control hardware. They must understand the multi-layered control architecture of the integrated factory, and the computer-based technologies that enable it.

Undergraduate Degree Program

The undergraduate program in manufacturing engineering provides first a strong foundation in all of the basic ingredients of engineering: the natural and physical sciences, mathematics, socioeconomic-cultural background, the behavioral sciences and finally the basic engineering sciences that begin the development of problem-solving skills. Then, the program develops intermediate bases on which manufacturing engineering and systems are founded. This includes studies in engineering materials, manufacturing processes, probability and statistics, electronics, computers, human factors/ergonomics and operations research. The program then provides for the detailed study of several advanced topics related to process, assembly, and product engineering; manufacturing productivity and quality; and manufacturing integration methods and system design. Excellent laboratory facilities are available for students to conduct experiments and measure process variables.

Finally, students are required to complete a project dealing with the design of a production system to manufacture a product. The student has to address issues related to technological cost, aesthetics, feasibility, reliability, safety and ethics wherever applicable.

The BSE in Manufacturing Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

An unusual opportunity is available to obtain considerable practical experience in manufacturing industries for those who elect the internship option.

Students who do well in their undergraduate program are encouraged to consider graduate work. Information and assistance regarding fellowships and assistantships for graduate studies may be obtained from the department chairperson.

Educational Objectives of the BSE (Manufacturing Engineering) Program

Consistent with providing a strong academic foundation in the field of Manufacturing Engineering, the program educational objectives for our graduates are:

Dual Degree in Manufacturing Engineering

Students must take at least 15 credits beyond the 128 credits needed for the Manufacturing Engineering degree, including ME 230; IMSE 4815 or IMSE 488 or ENGR 350 or ME 484; IMSE 4825 or ME 442; and IMSE 4835 from the courses listed in the Manufacturing Engineering curriculum.

Manufacturing Engineering

Manufacturing Engineering is concerned with designing, building, planning, operating, and managing economical production systems for discrete manufacturing. Manufacturing engineers need to have a thorough knowledge of materials and manufacturing processes. They should also be able to design, operate and manage integrated systems that include people, materials, machine tools, material handling equipment, robots, quality measuring equipment, controls and computers.

Traditionally, there has been a strong division between manufacturing engineering and design engineering. Today, however, the boundary between these two functions is narrowing. Both groups work together in teams to assure soundness of design and manufacturability of the product. Manufacturing engineers must understand engineering materials and design besides having expertise in manufacturing tooling and processes, systems and technology. They design and evaluate the capabilities of manufacturing tools and processes, and interact with design engineers during the development of product specifications and tolerances.

Today’s manufacturing equipment is becoming increasingly computer-based. Manufacturing engineers must have a working knowledge of programmable equipment, as well as its interfaces with control hardware. They must understand the multi-layered control architecture of the integrated factory, and the computer-based technologies that enable it.

Undergraduate Degree Program

The undergraduate program in manufacturing engineering provides first a strong foundation in all of the basic ingredients of engineering: the natural and physical sciences, mathematics, socioeconomic-cultural background, the behavioral sciences and finally the basic engineering sciences that begin the development of problem-solving skills. Then, the program develops intermediate bases on which manufacturing engineering and systems are founded. This includes studies in engineering materials, manufacturing processes, probability and statistics, electronics, computers, human factors/ergonomics and operations research. The program then provides for the detailed study of several advanced topics related to process, assembly, and product engineering; manufacturing productivity and quality; and manufacturing integration methods and system design. Excellent laboratory facilities are available for students to conduct experiments and measure process variables.

Finally, students are required to complete a project dealing with the design of a production system to manufacture a product. The student has to address issues related to technological cost, aesthetics, feasibility, reliability, safety and ethics wherever applicable.

The BSE in Manufacturing Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

An unusual opportunity is available to obtain considerable practical experience in manufacturing industries for those who elect the internship option.

Students who do well in their undergraduate program are encouraged to consider graduate work. Information and assistance regarding fellowships and assistantships for graduate studies may be obtained from the department chairperson.

Educational Objectives of the BSE (Manufacturing Engineering) Program

Consistent with providing a strong academic foundation in the field of Manufacturing Engineering, the program educational objectives for our graduates are:

Dual Degree in Manufacturing Engineering

Students must take at least 15 credits beyond the 128 credits needed for the Manufacturing Engineering degree, including ME 230; IMSE 4815 or IMSE 488 or ENGR 350 or ME 484; IMSE 4825 or ME 442; and IMSE 4835 from the courses listed in the Manufacturing Engineering curriculum.

Manufacturing Engineering

Manufacturing Engineering is concerned with designing, building, planning, operating, and managing economical production systems for discrete manufacturing. Manufacturing engineers need to have a thorough knowledge of materials and manufacturing processes. They should also be able to design, operate and manage integrated systems that include people, materials, machine tools, material handling equipment, robots, quality measuring equipment, controls and computers.

Traditionally, there has been a strong division between manufacturing engineering and design engineering. Today, however, the boundary between these two functions is narrowing. Both groups work together in teams to assure soundness of design and manufacturability of the product. Manufacturing engineers must understand engineering materials and design besides having expertise in manufacturing tooling and processes, systems and technology. They design and evaluate the capabilities of manufacturing tools and processes, and interact with design engineers during the development of product specifications and tolerances.

Today’s manufacturing equipment is becoming increasingly computer-based. Manufacturing engineers must have a working knowledge of programmable equipment, as well as its interfaces with control hardware. They must understand the multi-layered control architecture of the integrated factory, and the computer-based technologies that enable it.

Undergraduate Degree Program

The undergraduate program in manufacturing engineering provides first a strong foundation in all of the basic ingredients of engineering: the natural and physical sciences, mathematics, socioeconomic-cultural background, the behavioral sciences and finally the basic engineering sciences that begin the development of problem-solving skills. Then, the program develops intermediate bases on which manufacturing engineering and systems are founded. This includes studies in engineering materials, manufacturing processes, probability and statistics, electronics, computers, human factors/ergonomics and operations research. The program then provides for the detailed study of several advanced topics related to process, assembly, and product engineering; manufacturing productivity and quality; and manufacturing integration methods and system design. Excellent laboratory facilities are available for students to conduct experiments and measure process variables.

Finally, students are required to complete a project dealing with the design of a production system to manufacture a product. The student has to address issues related to technological cost, aesthetics, feasibility, reliability, safety and ethics wherever applicable.

The BSE in Manufacturing Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

An unusual opportunity is available to obtain considerable practical experience in manufacturing industries for those who elect the internship option.

Students who do well in their undergraduate program are encouraged to consider graduate work. Information and assistance regarding fellowships and assistantships for graduate studies may be obtained from the department chairperson.

Educational Objectives of the BSE (Manufacturing Engineering) Program

Consistent with providing a strong academic foundation in the field of Manufacturing Engineering, the program educational objectives for our graduates are:

Dual Degree in Manufacturing Engineering

Students must take at least 15 credits beyond the 128 credits needed for the Manufacturing Engineering degree, including ME 230; IMSE 4815 or IMSE 488 or ENGR 350 or ME 484; IMSE 4825 or ME 442; and IMSE 4835 from the courses listed in the Manufacturing Engineering curriculum.

Manufacturing Engineering

Manufacturing Engineering is concerned with designing, building, planning, operating, and managing economical production systems for discrete manufacturing. Manufacturing engineers need to have a thorough knowledge of materials and manufacturing processes. They should also be able to design, operate and manage integrated systems that include people, materials, machine tools, material handling equipment, robots, quality measuring equipment, controls and computers.

Traditionally, there has been a strong division between manufacturing engineering and design engineering. Today, however, the boundary between these two functions is narrowing. Both groups work together in teams to assure soundness of design and manufacturability of the product. Manufacturing engineers must understand engineering materials and design besides having expertise in manufacturing tooling and processes, systems and technology. They design and evaluate the capabilities of manufacturing tools and processes, and interact with design engineers during the development of product specifications and tolerances.

Today’s manufacturing equipment is becoming increasingly computer-based. Manufacturing engineers must have a working knowledge of programmable equipment, as well as its interfaces with control hardware. They must understand the multi-layered control architecture of the integrated factory, and the computer-based technologies that enable it.

Undergraduate Degree Program

The undergraduate program in manufacturing engineering provides first a strong foundation in all of the basic ingredients of engineering: the natural and physical sciences, mathematics, socioeconomic-cultural background, the behavioral sciences and finally the basic engineering sciences that begin the development of problem-solving skills. Then, the program develops intermediate bases on which manufacturing engineering and systems are founded. This includes studies in engineering materials, manufacturing processes, probability and statistics, electronics, computers, human factors/ergonomics and operations research. The program then provides for the detailed study of several advanced topics related to process, assembly, and product engineering; manufacturing productivity and quality; and manufacturing integration methods and system design. Excellent laboratory facilities are available for students to conduct experiments and measure process variables.

Finally, students are required to complete a project dealing with the design of a production system to manufacture a product. The student has to address issues related to technological cost, aesthetics, feasibility, reliability, safety and ethics wherever applicable.

The BSE in Manufacturing Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

An unusual opportunity is available to obtain considerable practical experience in manufacturing industries for those who elect the internship option.

Students who do well in their undergraduate program are encouraged to consider graduate work. Information and assistance regarding fellowships and assistantships for graduate studies may be obtained from the department chairperson.

Educational Objectives of the BSE (Manufacturing Engineering) Program

Consistent with providing a strong academic foundation in the field of Manufacturing Engineering, the program educational objectives for our graduates are:
• To remain gainfully employed in Manufacturing Engineering related fields,
• To continue develop professionally, and
• To serve in leadership roles.

Program Outcomes
To achieve the educational objectives, the graduates of the program will have:

a. an ability to apply knowledge of mathematics, sciences and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to function on multidisciplinary teams
e. an ability to identify, formulate and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global and society context
i. a recognition of the need for, and an ability to, engage in lifelong learning and graduate studies
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Major Requirements
A candidate for the degree Bachelor of Science in Engineering (Manufacturing Engineering) is required to pursue scholastic quality and to complete satisfactorily the following program of study:

(128 hours minimum)

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)
  • Lecture/Lab Science Course
  • Additional Science Course
Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Manufacturing Engineering from UM-Dearborn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics (ECON 201 or 202 also fulfill 3 credits of DDC Social and Behavioral Analysis)</td>
<td></td>
</tr>
<tr>
<td>or ECON 202</td>
<td>Prin: Microeconomics</td>
<td></td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>ENGR 126</td>
<td>Engineering Computer Graphics</td>
<td>2</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 146</td>
<td>General Chemistry IIB</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Programming and Core Engineering
ME 230 | Thermodynamics                                      | 4            |
ME 260 | Design Stress Analyses                              | 4            |
or ME 265 | Applied Mechanics                                   |             |
ECE 305 | Intro to Electrical Eng                             | 4            |

Professional Requirements
IMSE 317 | Eng Probability and Statistics                      | 3            |
IMSE 382 | Manufacturing Processes                             | 4            |
IMSE 421 | Eng Economy and Dec Anlys                           | 3            |
IMSE 4425 | Human Factors and Ergonomics                        | 4            |
IMSE 4675 | Six Sigma & Stat Proc Improv                        | 4            |
IMSE 4795 | Prod, Inven Control & Lean Mfg                      | 4            |
IMSE 4825 | Industrial Controls                                 | 4            |
or ME 442 | Control Syst Anly and Design                        |             |
IMSE 4835 | Comp.-Aided Prcs Design & Mfg                        | 4            |
ENGR 400 | Appl Business Tech for Engr                         | 3            |
IMSE 4951 | Design Project I                                    | 2            |
IMSE 4952 | Design Project II                                   | 2            |

Upper Level Manufacturing Process Course
Select one course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 4815</td>
<td>Manufacturing Process II</td>
<td>3-4</td>
</tr>
<tr>
<td>ME 484</td>
<td>Manufacturing Poly Comp Matl</td>
<td></td>
</tr>
</tbody>
</table>
ENGR 350 Nanoscience and Nanotechnology
IMSE 488 Metal Forming Processes

**Technical Electives**

Select 3 hours of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 3005</td>
<td>Intro to Operations Research</td>
</tr>
<tr>
<td>IMSE 381</td>
<td>Industrial Robots</td>
</tr>
<tr>
<td>IMSE 4545</td>
<td>Information Systems Design</td>
</tr>
<tr>
<td>IMSE 4585</td>
<td>Simulation in Systems Design</td>
</tr>
<tr>
<td>IMSE 4745</td>
<td>Facilities Design</td>
</tr>
<tr>
<td>IMSE 486</td>
<td>Design for Assembly &amp; Mfg</td>
</tr>
<tr>
<td>IMSE 488</td>
<td>Metal Forming Processes</td>
</tr>
<tr>
<td>ME 484</td>
<td>Manufacturing Poly Comp Matl</td>
</tr>
</tbody>
</table>

**General Electives**

Select 5-6 credit hours

- Technical and General Electives must total a minimum of 9 credits.

---

### Dual Degree in Industrial and Systems Engineering

Students must take at least 15 hours beyond the 128 hours needed for the Manufacturing Engineering degree including IMSE 3005, IMSE 4585 and IMSE 4745 and one elective course from the courses listed in the ISE curriculum.

### Mechanical Engineering

The mechanical engineering field is one of the oldest of the several engineering fields. It is also one of the broadest in scope, for it is not identified with nor restricted to any particular technology (like nuclear engineering), nor to any particular vehicle (like land-based automobiles), nor to any particular device or particular system. It is, in fact, concerned with so many areas of modern technology that the tasks and challenges of the mechanical engineer are most interesting and varied.

The field is logically associated with mechanical things, but this can lead to a restrictive image. For example, one often associates mechanical engineers with automobiles and, thus, with engines. To the non-engineer this is an acceptable association that implies a knowledge of pistons and carburetors. As engineers know, this picture is very shallow; the breadth of understanding implied when one thinks of designing an engine challenges the imagination. Automobile engines are just one of many devices that convert energy into useful work. To understand this conversion process is also to understand the basic principles of energy conversion applicable to solar engines, jet engines, gas turbines, fuel cells, ship-propulsion systems, rocket engines, hydro-electric power plants, and new kinds of converters not yet developed. The mechanical engineer possesses this universally applicable background in thermodynamics, heat transfer, fluid mechanics, aerodynamics, and combustion theory that is basic to all such systems. The mechanical engineer also has a similar understanding of materials from steels to textiles to biological materials to the latest plastics and the most exotic high temperature composites. The point is that everything that is built is achieved by applying these same principles and using these same materials.

To understand the dynamic nature of most mechanical devices and systems requires a thorough mastery of forces and stresses, of vibrations and acoustics, of shock and impact, of deformation and fracture. Yet, these are basic to virtually every product devised by people or found in nature. Automobiles are just one small example of where they are important.

Thus, the mechanical engineer is a designer who creates physical things of all sorts because the mechanical engineer’s breadth of background is everywhere applicable. The mechanical engineer produces machines to build other machines, and thus is in the forefront of new manufacturing technology. In this role the engineer is faced with the task of building new things created by all kinds of engineers. This exposes the engineer to other technologies, and the mechanical engineer must be able to grasp their essence easily. For example, as the builder of energy devices to tap the oceans’ resources, the mechanical engineer is simultaneously one of the oceanographers, one of the chemists, and one of the environmentalists, as well as the master designer.

The mechanical engineer is comfortable working with people as well as with machines. For example, the role in vehicle design is that of making technical advances in performance, efficiency, and cost while simultaneously meeting the life and comfort requirements of operators and passengers. Logically, then, the mechanical engineer is active in the new fields of biomechanics, biomaterials, biomedical fluid mechanics and heat transfer, air and water pollution, water desalinization, sensory aids, and prostheses.

### Undergraduate Degree Program

The undergraduate program in mechanical engineering provides first a strong foundation in all of the basic ingredients of engineering: the natural and physical sciences, mathematics, a comprehensive socio-economic-cultural background, the behavioral sciences, and finally the basic engineering sciences that begin the development of problem-solving skills.

The program provides for the detailed study of several advanced topics, including fluid machinery, heat transfer, manufacturing processes, vibration theory, stress analysis, metallurgy, electrical science, and control systems.

The greatest strength of the undergraduate program is the project-oriented design work that requires the student to organize thinking of the multitude of factors on which every design is based - performance, efficiency, esthetics, cost, reliability, safety, reparability, etc. - and to reach sound conclusions that the student must be prepared to defend and implement. This is the art of engineering, and its study permeates the courses and laboratories of the upper-level instruction in this field.

For those who choose the cooperative education option, it is possible to develop a more thorough understanding of how design factors are considered and how decisions are implemented in industrial organizations.

The BSE in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org (http://www.abet.org)

**Program Educational Objectives**

The Program Educational Objectives for the Bachelor of Science in Engineering in Mechanical Engineering are that our graduates will:

1. Be successfully employed in their discipline or a closely related field and contribute to the economy of the state and the nation.
2. Continue to enhance their knowledge base and skills through graduate degrees or other professional development, to keep abreast of ongoing changes in technology and related disciplines.

3. Be well rounded and well suited to work with colleagues and professionals with diverse backgrounds and cultures, and a wide range of competencies.

To achieve the educational objectives, the graduates of the program will have:

a. an ability to apply knowledge of mathematics, sciences and engineering.

b. an ability to design and conduct experiments, as well as to analyze and interpret data.

c. an ability to specify, model, and design a system, component or process to meet desired needs.

d. an ability to function on multidisciplinary teams.

e. an ability to identify, formulate and solve engineering problems.

f. an understanding of professional and ethical responsibility.

g. an ability to communicate effectively.

h. the broad education necessary to understand the impact of engineering solutions in a global and societal context, including environmental and economical impacts.

i. a recognition of the need for, and an ability to, engage in life-long learning.

j. a knowledge of contemporary issues.

k. an ability to use the techniques, skills and modern engineering tools, such as information technology, which are necessary for engineering practice.

Concentration Requirements

A candidate for the degree Bachelor of Science in Engineering (Mechanical Engineering) is required to pursue scholastic quality and to complete satisfactorily the following program of study:

(Minimum 128 hours)

Dearborn Discovery Core Requirement

The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits (p. 15)

Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)

Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry

Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

Capstone

Capstone (GECE) – 3 Credits (p. 22)

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Mechanical Engineering from UM-Dearborn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>ENGR 126</td>
<td>Engineering Computer Graphics</td>
<td>2</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>or MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>CHEM 144 &amp; CHEM 146</td>
<td>Gen Chemistry IIB and General Chemistry IIB</td>
<td>8</td>
</tr>
<tr>
<td>PHYS 150 &amp; PHYS 151</td>
<td>General Physics I and General Physics II</td>
<td>8</td>
</tr>
<tr>
<td>ENGR 216</td>
<td>Computer Meth for Engineers</td>
<td>2</td>
</tr>
<tr>
<td>ENGR 250</td>
<td>Principles of Eng Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 230</td>
<td>Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>ME 260</td>
<td>Design Stress Analyses</td>
<td>4</td>
</tr>
</tbody>
</table>

Professional Subjects and Program Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 305</td>
<td>Intro to Electrical Eng</td>
<td>4</td>
</tr>
<tr>
<td>ME 325</td>
<td>Thermal Fluid Sciences I</td>
<td>4</td>
</tr>
<tr>
<td>ME 345</td>
<td>Engineering Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>ME 349</td>
<td>Instrument &amp; Measurement Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 3601</td>
<td>Des and Analy of Mach Elem</td>
<td>4</td>
</tr>
<tr>
<td>ME 364</td>
<td>Prob, Stats, and Rel in Mach D</td>
<td>3</td>
</tr>
<tr>
<td>ME 375</td>
<td>Thermal Fluid Sciences II</td>
<td>4</td>
</tr>
<tr>
<td>ME 379</td>
<td>Thermal-Fluids Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ME 381</td>
<td>Manufacturing Processes I</td>
<td>4</td>
</tr>
<tr>
<td>ME 442</td>
<td>Control Syst Anly and Design</td>
<td>4</td>
</tr>
</tbody>
</table>

Senior Design Project

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 4671</td>
<td>Senior Design I</td>
<td>4</td>
</tr>
</tbody>
</table>

ME Design Electives

Choose one course from the following

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 4191</td>
<td>Structural Mech &amp; Design</td>
<td>3-4</td>
</tr>
<tr>
<td>ME 4201</td>
<td>Design of Turbomachinery</td>
<td></td>
</tr>
</tbody>
</table>
or ME 4202 Design Turbo. and Wind Gen.
ME 4361 Design of HVAC Systems
ME 4471 Solar Energy Sys Analy&Design
ME 460 Design for Manufacturing
ME 472 Prin & Appl of Mechatroninc Sys
ME 483 Dsgn Cons in Poly and Comp Mat
ME 493 Advanced Vehicle Energy Sys
BENG 370 Biomechanics I

Upper-Level Tech Electives 6-7
Select 6-7 additional credits from above or from the following
ME 410 Finite Element Method with Appl
ME 4301 Computational Thermo-Fluids
ME 4461 Mech Vibration & Noise Control
ME 452 Sustainable Energy & Environ
or ME 4521 Intro Sust Energy Systems
ME 481 Manufacturing Processes II
ME 484 Manufacturing Poly Comp Matl
ME 492 Guided Study in Mech Eng
ME 496 Internal Combustion Engines I
ME 4981 Automotive Engineering
ENGR 350 Nanoscience and Nanotechnology
IMSE 421 Eng Economy and Dec Anlys
BENG 375 Biomaterial Tissue Engrg
BENG 425 Transport in Biosystems
BENG 470 Biomechanics II
BENG 381 Bioprocessing

Design and Tech Electives must total a minimum of 10 credits

General Electives
Select 4 credits of general elective coursework. Fewer than 4 credits are needed if additional CECS credits were taken above.

Practical Aspects of Computer Security

The PACS undergraduate certificate will provide students with essential computer science concepts, basic security principles, and the tools and experience necessary for an entry-level position in IT-Security. This certificate provides a foundational knowledge in computer security principles, firewalls, malware, intrusion detection, physical security, wireless network security, mobile device security, social network security, and web application security.

The PACS undergraduate certificate is comprised of 4 courses (15 credit hours) delivered in a web-based format. All 15 credit hours are transferable into the College of Engineering and Computer Science's Computer & Information Science (CIS) or Cybersecurity and Information Assurance (CIA) B.S. degrees. This certificate is distinctly unique in that it creates a pathway for a student to receive a credential before transitioning into the degree program.

Any individual interested in advancing their knowledge in computer security principles, firewalls, malware, intrusion detection, physical security, wireless network security, mobile device security, social network security, and web application security will benefit from this program.

Data from the US Bureau of Labor Statistics indicates that job growth projections will increase 12% through the year 2022 for individuals with backgrounds in computer security. However, with the increase in cloud computing, this percentage has the potential to be even higher. As the utilization of information technology increases, there is also anticipated job growth in the healthcare industries. This growth, coupled with the impending federal government hiring regulations for military veterans, makes the job prospects extremely favorable for students who possess this credential.

Certificate Requirements

This web-based 15 credit hour certificate is comprised of 3 required core CIS courses, along with an applications course in practical computer security.

Applicants should have completed a math course equivalent to Calculus 1 (MATH 115) or have received College Level Exam Program (CLEP) credit for Calculus 1. It is also possible to take Calculus 1 (MATH 115) concurrently with CIS 150. Students who have not completed the calculus prerequisite have the option to take the UM-Dearborn Math Placement Test and complete the required mathematical courses as part of the certificate program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 150</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>CIS 200</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 275</td>
<td>Discrete Structures I</td>
<td>4</td>
</tr>
<tr>
<td>CIS 280</td>
<td>Prac Aspects of Computer Sec</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>15</td>
</tr>
</tbody>
</table>

Robotics Engineering

With recent advances in computer hardware and software, as well as 3D printing, the field of robotics is entering a new phase where robots are smaller, faster, cheaper, and smarter. These next generation robots will have applications in a wide variety of fields, including manufacturing, medicine, education, entertainment, military applications, etc.

The Bachelor of Science in Engineering (B.S.E.) degree in Robotics Engineering program requires a total of 125 credit hours. The program is designed to provide students with an understanding of important concepts in Robotics, Electrical and Computer Engineering, Systems Engineering, and Mechanical Engineering, as well as an ability to apply these concepts to design robots and robotic systems for diverse applications.

The educational objectives of the Robotics Engineering program are to develop graduates who possess:

- Good design skills, the ability to formulate problems; design experiments; collect, analyze, and interpret data; evaluate material, computational, and management resources needed to solve typical problems
- The ability to work in multidisciplinary teams and communicate effectively
- The ability to pursue graduate studies as well as a research career in industry, government, or academia
- Hands-on experience with commonly used industry standard software and hardware tools
• A good awareness of professional responsibility, ethics, and the need to engage in life-long learning

• A strong preparedness to meet regional needs, including the automotive, construction, defense-related, life-sciences, and power industries, consistent with the University’s mission

• A strong grounding in the principles and methods of robotics engineering, including robots, robotic systems, computers and control systems, and the ability to apply these in systems, products, and applications.

Program Educational Objectives
The objective of the BSE RE degree programs are to:

1. Achieve professional growth in an engineering position in regional and national industries. Growth can be evidenced by promotions and appointment in the workplace (management positions, technical specialization), entrepreneurial activities, and consulting activities.

2. Success in advanced engineering studies evidenced by enrollment in graduate courses, completion of graduate degree programs, presentations and publications at professional events, and awards or licences associated with advanced studies.

3. Realization of impactful achievements in societal roles demonstrated by attainment of community leadership roles, mentoring activities, civic outreach service, and active roles in professional societies.

Program Outcomes
The Robotics Engineering program is designed to demonstrate that graduates of the program have:

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to work cooperatively on multi-disciplinary projects
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. proficiency in oral and written communications
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a clear understanding that lifelong learning is essential for sustained professional development
j. a knowledge of contemporary issues and its impact on the engineering profession
k. an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Concentration Requirements
(125 hours minimum)

Dearborn Discovery Core Requirement
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

Foundational Studies
Written and Oral Communication (GEWO) – 6 Credits (p. 15)
Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

Areas of Inquiry
Natural Science (GENS) – 7 Credits (p. 17)

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESEB) – 9 Credits (p. 18)
Humanities and the Arts (GEHA) – 6 Credits (p. 19)
Intersections (GEIN) – 6 Credits (p. 20)

Capstone
Capstone (GECE) – 3 Credits (p. 22)
In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BSE degree in Robotics Engineering from UM-Dearborn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 270</td>
<td>Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td>Prin: Macroeconomics (ECON 201 or 202 also fulfill 3 credits of DDC Social and Behavioral Analysis)</td>
<td></td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Intro to Eng and Computers</td>
<td>2</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 205</td>
<td>Calc III for Engin Students</td>
<td>3</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Intro to Diff Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 217</td>
<td>Intro to Matrix Algebra</td>
<td>2</td>
</tr>
<tr>
<td>or MATH 227</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Gen Chemistry IB</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>IMSE 317</td>
<td>Eng Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ME 265</td>
<td>Applied Mechanics</td>
<td>4</td>
</tr>
</tbody>
</table>

Applied Business Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 400</td>
<td>Entrepreneurial Thinking&amp;Behav</td>
<td>3</td>
</tr>
</tbody>
</table>

ECE Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 210</td>
<td>Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ECE 270</td>
<td>Computer Methods in ECE I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 273</td>
<td>Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>ECE 311</td>
<td>Electronic Circuits I</td>
<td>4</td>
</tr>
</tbody>
</table>
Software Engineering

Software Engineering is the computer discipline that is concerned with the theoretical and practical aspects of building high quality software systems, on time, and within budget. Software engineers are tasked with the detailed analysis, design, implementation, testing, maintenance and management of software product development projects for a broad range of computing applications across society.

The increasing pressure to deliver high-quality, reliable software products in less time is rapidly fueling the demand for computer professionals with specific preparation in software engineering and experience in working on teams. These pressures stem from such widespread development as

- The use of software for demanding and safety-critical applications that make it imperative to avoid the serious, indeed sometimes fatal, consequences of poorly understood design.
- The need to create consumer and entertainment applications like computer games, in the face of a highly competitive global market place.
- The increasing need to develop useful, easy-to-use software tools that reliably meet customer needs and whose features and documentation can be used and understood by their intended user with a high degree of consistency and confidence.
- The need to re-engineer or replace aging legacy software systems to take advantage of modern computer hardware capabilities.

Recent advances in the practice and technology of software engineering have made it possible to offer undergraduate and graduate degree programs in software engineering itself. Notable among these advances are:

- The availability of proven computer tools (such as CASE tools) and processes (such as the Personal Software Process) to standardize and automate software development.
- The increasing importance of formal methods and software quality measurement techniques to ensure more thorough testing of software.
- The success of the agile and object-oriented software engineering methods, as well as the move toward technical and managerial practices that cover the full software development cycle.

Software engineers must know the subset of computer science that is relevant to software development. They must also have knowledge of the principles of effective and reliable design, of mathematics and other sciences that are traditionally known by engineers, and of the skills and applications of project management.

Software engineering includes:

- Software design and development; that is, building commercial, industrial-strength software by the application of validated knowledge and experience that have been codified into formal methods of best practices.
- Software process and quality assurance; that is, the systematic discipline of consciously improving the quality, cost and timeliness of the process itself by which large software systems are designed and developed.
- Software development project management; that is, how to manage large software design projects and bring development to a timely and efficient completion.

The software engineering degree program offered by the Department of Computer and Information Science stresses the range of technical, systematic, and managerial aspects of the software engineering process but places primary emphasis on the technical facets of designing, building, and modifying large and complex software systems. This program concentrates on all software development lifecycle phases, including: program management, requirements engineering, software architecture design, software implementation, software configuration management, software quality assurance, and software process maturity measurements and improvements. It balances both theoretical and practical aspects by covering fundamentals in the classroom and evaluating student knowledge by implementing team-based work projects. Students complete a minimum of 120 credits and receive a BS degree in Software Engineering. The degree prepares graduates for immediate employment in the software engineering field and for graduate study.

The BS in Software Engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org

415 North Charles Street, Suite 1050, Baltimore, MD 21201
Telephone: (410) 347-7700.

Program Objectives

1. Our graduates will be successfully employed in software engineering–related field or another career path, in an industrial, commercial, academic, governmental, or non-governmental
organization, or will be a successful graduate student in a program preparing them for such employment.

2. Our graduates will lead and participate in culturally diverse teams, become global collaborators and adapting to an ever-changing field.

3. Our graduates will continue professional development by obtaining continuing education credits, professional registration or certifications, or post-graduate study credits or degrees.

Program Outcomes
1. An ability to apply knowledge of mathematics, science, and engineering;
2. An ability to design and conduct experiments, as well as to analyze and interpret data;
3. An ability to design a system, component, or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
4. An ability to function on multidisciplinary teams;
5. An ability to identify, formulate, and solve engineering problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
9. A recognition of the need for, and an ability to engage in, life-long learning;
10. A knowledge of contemporary issues;
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
12. An ability to program.
13. An ability to manage a project.

Concentration Requirements
A candidate for the degree Bachelor of Science in Software Engineering is required to pursue scholastic quality and to complete satisfactorily the following program of study:

(120 hours minimum)

**Dearborn Discovery Core Requirement**
The minimum passing grade for a Dearborn Discovery Core (DDC) course is 2.0. The minimum GPA for the program is 2.0. In addition, the DDC permits any approved course to satisfy up to three credit hours within three different categories. Please see the General Education Program: The Dearborn Discovery Core (p. 15) section for additional information.

**Foundational Studies**
- Written and Oral Communication (GEWO) – 6 Credits (p. 15)
- Upper Level Writing Intensive (GEWI) – 3 Credits (p. 15)
- Quantitative Thinking and Problem Solving (GEQT) – 3 Credits (p. 16)
- Critical and Creative Thinking (GECC) – 3 Credits (p. 16)

**Areas of Inquiry**
- Natural Science (GENS) – 7 Credits (p. 17)
- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits (p. 18)

Humanities and the Arts (GEHA) – 6 Credits (p. 19)

Intersections (GEIN) – 6 Credits (p. 20)

**Capstone**
Capstone (GECE) – 3 Credits (p. 22)

**General Requirements**
In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a BS degree in Software Engineering from UM-Dearborn.

<p>| Code   | Title                                                                 | Credit Hours |
|--------|                                                                      |              |
|        | General Requirements                                                 |              |
| COMP 270 | Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication) |              |
| ECON 201 | Prin: Macroeconomics (Also fulfills 3 credits of DDC Social and Behavioral Analysis) |              |
|        | Mathematics                                                           |              |
| MATH 115 | Calculus I                                                           | 4            |
| MATH 116 | Calculus II                                                          | 4            |
| CIS 275  | Discrete Structures I                                                | 4            |
| CIS 306  | Discrete Structures II                                               | 4            |
| MATH 217 | Intro to Matrix Algebra                                              | 2-3          |
| or MATH 227 | Introduction to Linear Algebra                                    |              |
| IMSE 317 | Eng Probability and Statistics                                      | 3            |
|        | Laboratory Science Sequence                                           |              |
| Select two courses, 8 credits, in one sequence from:                  | 8            |
| BIOL 130 | Intro Org and Environ Biology                                        |              |
| &amp; BIOL 140 | and Intro Molec &amp; Cellular Biology                                  |              |
| CHEM 134 | General Chemistry IA                                                 |              |
| &amp; CHEM 136 | and General Chemistry IIA                                           |              |
| CHEM 144 | Gen Chemistry IB                                                     |              |
| &amp; CHEM 146 | and General Chemistry IIB                                           |              |
| GEOL 118 | Physical Geology                                                     |              |
| &amp; GEOL 218 | and Historical Geology                                              |              |
| PHYS 125 | Introductory Physics I                                               |              |
| &amp; PHYS 126 | and Introductory Physics II                                         |              |
| PHYS 150 | General Physics I                                                    |              |
| &amp; PHYS 151 | and General Physics II                                              |              |
| Natural Science                                                       |              |
| Select four credits from:                                             | 4            |
| ASTR 130 | Introduction to Astronomy                                            |              |
| &amp; ASTR 131 | and Introductory Astronomy Lab                                      |              |
| BIOL 130 | Intro Org and Environ Biology                                        |              |
| BIOL 140 | Intro Molec &amp; Cellular Biology                                       |              |
| CHEM 134 | General Chemistry IA                                                 |              |
| CHEM 136 | General Chemistry IIA                                                |              |
| CHEM 144 | Gen Chemistry IB                                                     |              |
| CHEM 146 | General Chemistry IIB                                                |              |
| CHEM 225 | Organic Chemistry I                                                  |              |</p>
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 226</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Physical Geology</td>
</tr>
<tr>
<td>GEOL 218</td>
<td>Historical Geology</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>Introductory Physics I</td>
</tr>
<tr>
<td>PHYS 126</td>
<td>Introductory Physics II</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>General Physics II</td>
</tr>
</tbody>
</table>

**Business Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB 354</td>
<td>Behavior in Organization</td>
<td>3</td>
</tr>
</tbody>
</table>

**CIS Core**

Seven computer and information science courses are required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 150</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>CIS 200</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 310</td>
<td>Computer Org and Assembly Lang</td>
<td>4</td>
</tr>
<tr>
<td>CIS 3501</td>
<td>Data Struc &amp; Alg Anlys for SE</td>
<td>4</td>
</tr>
<tr>
<td>CIS 375</td>
<td>Software Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>CIS 427</td>
<td>Comp Networks and Dis Process</td>
<td>4</td>
</tr>
<tr>
<td>CIS 450</td>
<td>Operating Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

**Software Engineering Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 285</td>
<td>Software Engineering Tools</td>
<td>3</td>
</tr>
<tr>
<td>CIS 376</td>
<td>Software Engineering II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 476</td>
<td>Soft Arch &amp; Design Patterns</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4961</td>
<td>Design Seminar for SE I</td>
<td>2</td>
</tr>
<tr>
<td>CIS 4962</td>
<td>Design Seminar for SE II</td>
<td>2</td>
</tr>
</tbody>
</table>

**One Application Sequence**

Select 7-9 credit hours: 7-9

**Information Systems Sequence**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 425</td>
<td>Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>CIS 447</td>
<td>Intro Computr &amp; Ntwrk Security</td>
<td>3</td>
</tr>
</tbody>
</table>

**Computer Game Design Sequence**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 297</td>
<td>Intro to C Sharp</td>
<td>3</td>
</tr>
<tr>
<td>CIS 487</td>
<td>Computer Game Design &amp; Impl</td>
<td>3</td>
</tr>
<tr>
<td>CIS 488</td>
<td>Computer Game Design II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Web Engineering Sequence**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 421</td>
<td>Database Mgmt Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Take one of the following two courses:

- CIS 435 Web Technology
- CIS 436 Mobile App Des & Impl

**Technical Electives**

Select 8-10 additional credits from the following. Only one course from CIS 296 or CIS 297 may be used towards the 120 credits of the degree:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 296</td>
<td>Java Programming</td>
</tr>
<tr>
<td>or CIS 297</td>
<td>Intro to C Sharp</td>
</tr>
<tr>
<td>CIS 381</td>
<td>Industrial Robots</td>
</tr>
<tr>
<td>CIS 387</td>
<td>Digital Forensics I</td>
</tr>
<tr>
<td>CIS 400</td>
<td>Programming Languages</td>
</tr>
<tr>
<td>CIS 405</td>
<td>Algorithm Analysis &amp; Design</td>
</tr>
<tr>
<td>CIS 421</td>
<td>Database Mgmt Systems</td>
</tr>
<tr>
<td>CIS 423</td>
<td>Dec Support and Exp Systems</td>
</tr>
<tr>
<td>CIS 425</td>
<td>Information Systems</td>
</tr>
</tbody>
</table>

**General Electives**

Select four credit hours

1. The Application Area and Technical Electives must total 17 hrs
2. Any for-credit courses; that is, courses not on the No Credit list, which is found at the end of the CECS Student Handbook.
Students who do not attend for one calendar year, must be readmitted to the University through their Academic Unit and must satisfy degree and program requirements in effect at the time of their readmission.

Information in this Undergraduate Catalog is as of June 2017. Every care has been taken to insure its accuracy; however, the University cannot be responsible for errors and reserves the right to change programs, requirements and policies at any time after the publication of this Catalog. Current information is available through Unit and Departmental Offices.

Courses A-Z

Accounting (ACC)

ACC 298 Financial Accounting 3 Credit Hours
The first course, of a two-course sequence, to introduce accounting concepts, principles, financial statement preparation, and the uses of accounting information. Topics include fundamental concepts and procedures of financial accounting including income measurement, asset valuation, financial statement preparation and analysis, and uses of accounting information for decision making.
Prerequisite(s): (MATH 104* or MATH 105* or MPLS with a score of 115 or MATH 113* or MATH 115* or MPLS with a score of 116)
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior or Graduate

ACC 299 Managerial Accounting 3 Credit Hours
To introduce managerial accounting concepts and applications. Specific topics include: cost terminology, cost behavior, product costing systems, budgeting, standard costing systems and variance analysis, and cost allocation methods. To connect the materials in this course to concepts covered in the prerequisite course, ACC 299 begins with financial statement analysis. Discussion of ethics and globalization issues will be interwoven into the presentation of course materials.
Prerequisite(s): ACC 298

ACC 304 Auditing&Forensic Examinations 3 Credit Hours
To study forensic examination and investigation techniques including typical embezzlement and financial statement fraud scenarios, fraud risk factors, sources and uses of evidence, and interrogation and surveillance techniques. Specifically, the course presents an introduction to forensic accounting and fraud examination by studying the nature of fraud, how it is committed, and the motivations of those who defraud an organization, owners, and capital markets. Fraud detection includes the recognition of fraud symptoms and approaches to act on those symptoms. Fraud investigation includes the examination of a fraud act, methods used to conceal the act, and other methods specific to detect various types of fraud. Other course topics may include expanding assurance services, advanced internal control testing, and risk based investigations. Special attention will be given to the changing role and services offered by internal auditors and fraud examiners, and responsibility to the public.
Prerequisite(s): ACC 298
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters or Business
ACC 355  Cost Accounting and Analysis  3 Credit Hours
To study the development, analysis and interpretation of accounting information for planning and controlling costs and revenues. Topics include: cost concepts, cost behavior, product costing systems, cost allocation systems, budgeting, standard costs and variance analysis and performance evaluation techniques.
Prerequisite(s): (ACC 356 or ACC 358) and BE 401

ACC 356  Intermediate Financial Acct 1  3 Credit Hours
To study the accounting function in the business environment; review the operations and operating cycles in service, merchandising, and manufacturing industries; the conceptual accounting base of recording revenue and matching expenses at the traditional point of sale or delivery; the current state of the accounting profession; and an overview of financial accounting statements.
Prerequisite(s): ACC 299 and ACC 380* and ACC 381*

ACC 357  Intermediate Financial Acct 2  3 Credit Hours
To study financing and investing issues in today's international business environment, including financing through various ownership and debt instruments, off-balance-sheet financing and leverage; investing in tangible and intangible operating assets; investing in financial instruments for return and risk management purposes; and investing in financial instruments to influence or control operations of other business units.
Prerequisite(s): ACC 356 and ACC 380 and ACC 381 and FIN 401*

ACC 358  Financial Reporting  3 Credit Hours
This course provides an intermediate level analysis of financial accounting focusing on recognition, measurement, and reporting issues associated with assets, liabilities and owner equity in conjunction with related income determination questions. The course is designed for financial statement information users who need a level of sophistication beyond an introductory level, yet not the complete technical expertise of a financial accountant. (YR).
Prerequisite(s): ACC 298
Restriction(s):
Cannot enroll if Major is Accounting

ACC 360  Federal Income Taxation  3 Credit Hours
To acquaint the student with the federal income tax, tax research, tax planning, and application of tax laws to taxable entities. The course will introduce the student to a broad range of tax concepts within a framework of financial accounting principles. Emphasis will be placed on the taxation of business entities, individual taxpayers, and the differences between financial and tax accounting. The use of technology to research problem assignments will be used to develop students' business communication and problem solving skills.
Prerequisite(s): ACC 356 or ACC 358 or FIN 411

ACC 380  Accounting Information Systems  3 Credit Hours
To study the concepts, theory, organization and application of accounting information systems and the flow of accounting data through transaction cycles. Topics include: the principles of accounting systems design, internal control analysis and development and the overall evaluation of networked computer-based accounting systems. Emphasis is placed on transaction processing systems, internal control systems, and computer-assisted decision making for unstructured problems by employing accounting databases.
Prerequisite(s): ACC 299
Corequisite(s): ACC 381

ACC 381  Accounting Info Sys Lab  1 Credit Hour
ACC 381 is a lab component of ACC 380. Students will complete weekly laboratory assignments to reinforce the concepts of ACC 380 to use information technology to solve business problems. In addition, the use of several common applications (e.g., Word, Excel, Access, and PowerPoint) will also be covered at the beginning to advanced levels.
Prerequisite(s): ACC 299
Corequisite(s): ACC 380
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ACC 403  Advanced Managerial Accounting  3 Credit Hours
This course is intended to equip students with both theoretical and practical tools to manage all significant facets of production process costs, revenue streams, budgeting, and the related reporting system. The course focuses on topics such as managing "upstream" cost, cost structures, control tools, establishing standards, reporting processes, analysis to improve per unit profitability, and budgeting. The above topics will be used to develop resource plans to achieve management's objectives. (YR).
Prerequisite(s): ACC 355

ACC 416  Advanced Financial Acct 1  3 Credit Hours
To study advanced operating issues of revenue recognition and matching related expenses, including compensation, taxation, and capital costs; and a comprehensive analysis of financial statements, the related disclosures, and their information content.
Prerequisite(s): ACC 357 or ACC 358

ACC 417  Adv Financial Accounting 2  3 Credit Hours
This course is intended to help students gain expertise in preparing financial statements for complex business organizations. Specific topics include: the preparation of segmental and consolidated financial statements; intricate accounting issues associated with business combinations including but not limited to combinations at the date of acquisition and periods post acquisition; analysis of inter-company transactions such as inventory and asset transfers between parent and subsidiary; reporting for segments of a business as well as interim reporting; foreign exchange issues including inter-period reporting and financial statement translation; international reporting issues associated with all of the above, as well as, other topics. (YR)
Prerequisite(s): ACC 416

ACC 438  Advanced Federal Income Tax  3 Credit Hours
To acquaint the student with the concepts of federal taxation, tax research, tax planning, and application of tax laws to taxable entities. The course will introduce the student to a broad range of tax concepts within a framework of financial accounting principles. Emphasis will be placed on the taxation of business entities and the differences between financial and tax accounting. The use of technology to research problem assignments will be used to develop students? business communication and problem solving skills.
Prerequisite(s): ACC 360

ACC 439  Not-for-Profit Accounting  3 Credit Hours
To study the principles and procedures of accounting for not-for-profit entities. Topics may include: state and local government financial accounting, financial accounting for selected other entities, managerial concepts and current issues. Students will not receive credit for both ACC 439 and ACC 539.
Prerequisite(s): ACC 356
ACC 457  Auditing  3 Credit Hours
To introduce students to the audit profession, process, and practice. Topics include general auditing and ethical standards, principles of internal control and audit objectives, audit testing and sampling techniques, as well as the auditor's responsibility for communications and risk assessment.
Prerequisite(s): BE 401 ACC 357
Restriction(s):
Can enroll if Class is Senior

ACC 480  Information Tech Eval& Control  3 Credit Hours
The course emphasizes the control and evaluation of information systems to ensure accounting and management financial reporting and information processing objectives are accomplished. The course covers the theory of control evaluation, design of internal control, and the evaluation of internal controls in traditional and emerging information technology environments. Emphasis will be placed on current technologies in use by business organizations, emerging technologies, and the application of current professional guidance to evaluate existing and proposed information systems. (YR).
Prerequisite(s): (ACC 380 or MIS 310) and ACC 457*

ACC 482  Seminar: Accounting  1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current areas related to the research activities and/or professional activities of faculty members. Permission of College of Business.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

ACC 487  Advanced Auditing  3 Credit Hours
To introduce students to advanced audit and assurance service practices, strategies, and techniques. Topics include audit strategy, fraud, internal and operation audits, auditor liability, issues in audit information technologies, and audit practice. (YR)
Prerequisite(s): ACC 457
Restriction(s):
Can enroll if Class is Senior

ACC 492  Research: Accounting  1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit. Permission of College of Business.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

African & African-American Studies (AAAS)

AAAS 106  Intro to the African Past  3 Credit Hours
This course is a survey of the social, economic, political, intellectual and cultural heritage of the African peoples from pre-history to the present. The emphasis is on the internal dynamics of the African society through five millennia, as well as the impact of external forces on African life. Themes of particular interest: the roots of African culture, the trans-Atlantic slave trade and the African Diaspora in the New World, the European Conquest and the character of the colonial order and the ongoing struggle to end the legacy of alien domination. (YR)
Restriction(s):
Can enroll if Level is Undergraduate

AAAS 239  Intro to Lit: African American  3 Credit Hours
A study of African-American literature designed to expose students to important periods, works, and authors within historical context. Topics will include slavery, reconstruction, the Great Migration, the Harlem Renaissance, and the contemporary renaissance in Black women's literature. Students will be required to read critically, discuss, analyze, and write their responses to the several literary genres that will be incorporated (fiction, drama, poetry). (YR).

AAAS 300  Introduction to AAAS  3 Credit Hours
This gateway course in the African and African American Studies Program introduces students to the intellectual debates, historical perspectives and cultural issues central to the field of African and African American Studies. The course readings draw from the disciplinary strengths of the Humanities as well as the Social and Behavioral Sciences. Course materials include selections from literature, film, music, art, drama, folk and popular culture. The course content is supplemented by attendance at off-campus events and visits to institutions featuring significant aspects of African and African American history and culture.
Restriction(s):
Cannot enroll if Class is Freshman

AAAS 304  Detroit History and Culture  3 Credit Hours
This interdisciplinary course explores the political, social, and cultural history of Detroit by examining ways various groups and classes have interacted with and been shaped by structures of power and influence. This course highlights trade and commerce, newcomers, and the influence of organizations and institutions within the contexts of labor, race, ethnic, and religious histories and current affairs, and examines how these fit into the evolution of Detroit from the 19th century to the present. Where pertinent the influence of national and international movements are included. (YR)

AAAS 313  African American Religions  3 Credit Hours
Full Title: African American Religious Experience This lecture course presents a survey of African American expressions across diverse religious traditions including Christianity, Islam, Judaism, Buddhism, and will explore contested forms of spiritual expression such as secularism and new religious movements. The course tracks these experiences from the late 18th to the 21st century in light of the contemporaneous context of social, political, and economic forces in the United States. No prerequisites. (YR)

AAAS 316  African American History  3 Credit Hours
This course will trace the experience of African Americans from their first landing in Virginia in 1619 through slavery and the Civil War. Emphasis will be placed on the origins of racism, the development of the slave system in the United States and the historical developments that led to the Civil War. (YR).
AAAS 320  African-American Music History  3 Credit Hours
A study of African American Music History from its African origins through the present. An understanding of the broad cultural, political, social, economic and media forces that have affected African Americans, their music and history- and in turn, the many important ways that African American music has influenced culture. Course examines multiple genre of music including classical, spiritual, jazz, blues and rap.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

AAAS 321  Untold Caribbean: Field Course  3 Credit Hours
Full Course Title: Dark History and Untold Stories: Field Class in Caribbean Historical Archaeology. Field Class: involves international travel and required costs in addition to tuition. This class explores the story behind Caribbean "paradise." We use the analytical methods of historical archaeology to "read" sites of enslavement and resistance, as well as modern museum interpretations of Caribbean heritage, and engage in the production of new archaeological knowledge through excavation. We will ask how negative or "dark" history should be remembered, what life was like on Caribbean plantations, and how histories of slavery are relevant now. Throughout, we will examine how archaeology can tell the untold stories of the many people-black, white, free, and enslaved-who never made it into the history books. We will also contribute new voices with a "mini-field season" of archaeological excavation: students can gain a glimpse into scientific archaeology, and get to try out fieldwork to see if they would gain from a full field school. (S,OC)

AAAS 322  Psychology of Prejudice  3 Credit Hours
A consideration of ethnic (including racial, sexual, and religious) prejudice from the psychological point of view, focusing on the mind of both the oppressor and the oppressed. (AY).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

AAAS 325  Econ of Poverty/Discrimination  3 Credit Hours
An analysis of the economic aspects of poverty and discrimination. Emphasis on the theoretical economic causes of poverty and the economic bases for discriminating behavior, the impact of poverty and discrimination on individuals and society, and the effect of reform policies on the two problems. (AY).
Prerequisite(s): ECON 201 and ECON 202

AAAS 333  Intro to Gospel Music  3 Credit Hours
This course explores the history and aesthetics of Black sacred music within cultural context. Major figures (Thomas A. Dorsey, Mahalia Jackson, The Winans Family, Kirk Franklin), periods (slavery, Great Migration, Civil Rights movement), and styles (folk and arranged Negro spirituals, congregational songs, and gospel songs - traditional to contemporary) will be studied through recordings, videos, films, and at least one field experience. Underlying the course is the theory (Mellonee Burnim and Pearl Williams-Jones) that gospel music is an expression of African American culture that fuses both African and European elements into a unique whole. (OC).

AAAS 340  Race and Evolution  3 Credit Hours
An evolutionary survey of the biological differences among human populations in response to such factors as climate, culture, disease, nutrition and urbanization. The meaning of racial variation is discussed in terms of adaptation to environmental stress. "Race" is rejected, racism is discussed. (YR).
Prerequisite(s): ANTH 101

AAAS 345  West Africa Since 1800  3 Credit Hours
A history of the West African peoples since 1800, which focuses on their unique cultural heritage. Themes include: West Africa before the advent of alien domination, the European Conquest, West Africa under the Colonial regimes, and the liquidation of colonial rule and the reassertion of West African independence. (AY).

AAAS 3634  History of Islam in the US  3 Credit Hours
This course traces the long history of Islam and of Muslims in the United States (1730s-present), paying careful attention to the interaction among Muslims across the dividing lines of race, gender, immigrant generations, sect, political orientation, and class, and between Muslims and other Americans.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

AAAS 367  Religion and Resistance  3 Credit Hours
This course examines how religion and spirituality as cultural form has been instrumental in influencing social, political, and economic thought and the action of violent and nonviolent resistance. In such, African Americans have affirmed their humanity, their citizenship, and have exerted mechanisms of protest and change that have in-kind influenced similar thought and activity around the globe. When contemporary students are aware of this history at all, it is often without the knowledge or understanding of the various forms of resistance and the range of reason and spirituality behind this activity. The course will present key figures from within this range (AY).

AAAS 368  Black Exp in U.S.-1865-Present  3 Credit Hours
The history of Blacks in America is traced from the Reconstruction era and the rise of Jim Crow segregation to the Civil Rights movement of the 1960's and the current period. Special attention is paid to the migration of blacks to the north and the social-economic situation which they encountered there. Specific topics to be addressed include formation of the NAACP. (AY).

AAAS 369  Civil Rights Movement in Amer  3 Credit Hours
A survey of race relations and civil rights activities from late 19th century to the present. The principal focus, however, is on the period since World War II, especially on the mass-based civil rights movement (1955-1965) and the various policy debates and initiatives of the past thirty years, most notably affirmative action and busing. We also examine critiques of non-violence and integrationism. (AY).

AAAS 371  African Exper in the Americas  3 Credit Hours
The course is a survey of African populations and cultures from 1500 to the present throughout the Americas. The focus of the course is on the Caribbean and Latin American contexts of these populations, but comparisons to North America will be made. Topics include the slavery, the relationship between Africans and indigenous populations, religions, politics, music, and questions of race and ethnicity. Readings will include ethnographic description, history, biography and fiction. (YR).

AAAS 385  Black Cinema  3 Credit Hours
The course will examine selected films from African American and African film traditions in order to analyze how their cultural production is responsive to the conditions of social oppression, economic under-development, and neo-colonialism. How film traditions define "Black aesthetics" will also be discussed. (AY).
AAAS 388  W. African Music: Trad.&Glob.  3 Credit Hours
West African popular music contains a unique mixture of African, Cuban, European and American influences. With the advent of radio and recording, music that was once locally based is now part of a national and international popular music industry. This course offers an overview of modern West African music, both traditional and popular. The course begins with an introduction to traditional West African instruments and musical genres. Next, there is an exploration of the fusion of traditional African styles with European, Cuban and American styles during and after the colonial era. The course culminates with an examination of the contributions of West African musicians to the World Music scene, focusing on issues of representation and Fair Trade.
**Prerequisite(s):** MHIS 100 or MHIS 120 or MHIS 130 or MTHY 100 or AAAS 106 or AAAS 275 or HUM 100 or HUM 270

AAAS 389  Odyssey of Black Men in Amer  3 Credit Hours
This course will examine the struggle of African American men for personal, political, and creative expression. This course incorporates several literary genres (narrative, fiction, essay, drama, and poetry) and the literary voices of black men who range from professional writers to politicians, from athletes to actors. Students will be required to critically read, discuss, analyze, and write their own responses to the literature found in the texts. (YR).
**Prerequisite(s):** (COMP 106 or COMP 280 or COMP 270 or COMP 220 or ENGL 230 and (ENGL 200 or CPAS with a score of 40) or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

AAAS 390  Topics in Af & Af Am Studies  3 Credit Hours
This course examines problems and issues in selected areas of African and African American Studies. The specific title of the course will change in the Schedule of Classes according to content. Course may be repeated for credit when specific topic differs. (OC).
**Restriction(s):**
Can enroll if Level is Undergraduate or Professional Development

AAAS 393  Black Women, Rel & Spirituality  3 Credit Hours
This lecture course surveys descriptive and critical literature relevant to the religious and spiritual experience and thought of African diasporic women. Studying religiosity and spirituality among this population helps students understand this influential, culturally-constructed world view of Black women as they engage in a variety of institutions including healthcare, economic activity, the criminal justice system, politics, and social relationships. The course gives particular attention to Black feminist and Womanist literature on these topics. (AY)
**Restriction(s):**
Cannot enroll if Class is Freshman

AAAS 403  Minority Groups  3 Credit Hours
The status of racial and ethnic minorities in the United States with particular reference to the social dynamics involved with regard to majority-minority relations. Topics of study include inequality, segregation, pluralism, the nature and causes of prejudice and discrimination and the impact that such patterns have upon American life. Students cannot receive credit for both AAAS 403 and AAAS 503.
**Prerequisite(s):** SOC 200 or SOC 201
**Restriction(s):**
Can enroll if Level is Undergraduate

AAAS 404  Dissed: Differ, Power, Discrim  3 Credit Hours
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power - social, economic, and political - in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a 'natural order', obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors, and ideologies that maintain discrimination and the unequal distribution of power and resources. Students will not receive credit for both AAAS 404 and AAAS 504.
**Restriction(s):**
Can enroll if Class is Freshman or Sophomore or Junior or Senior

Can enroll if Level is Undergraduate

AAAS 440  Seminar: African Diaspora  3 Credit Hours
Research seminar on the history of the African Diaspora in the Atlantic World. This course covers examples of classic texts in the field, as well as significant new scholarship, with an emphasis on critical reading, analysis, and the development of an independent research project. Students gain a deeper understanding of the significance of the African Diaspora in the New World, derived from lectures and discussions providing an overview of this subject, as well as the micro views gleaned from sharing classroom presentation about students’ individual research topics. The graduate version of this course includes weightier readings and assignments, with a research paper for potential publication.
**Prerequisite(s):** HIST 300 or AAAS 2755 or HIST 345 or AAAS 345
**Restriction(s):**
Cannot enroll if Class is Freshman or Sophomore or Graduate

AAAS 449  Black Family in Contemp Amer  3 Credit Hours
The African-American family is examined in relationship to the historical and contemporary forces that have shaped its characteristic patterns of family life. These forces include the influence of slavery, urbanization, racial discrimination and urban poverty. The patterns of family life include parental roles, family structure, kinship relations, and gender roles. (YR).
**Prerequisite(s):** SOC 200 or SOC 201

AAAS 449  Contemporary African Amer Lit  3 Credit Hours
An intensive study of major 20th-century African-American writers. Fiction, poetry, autobiography, and drama will be examined but one genre will be stressed in any given term, e.g., the novel. Lectures will provide historical and biographical context for analysis and discussion of the works. Students cannot receive credit for both AAAS 469 and AAAS 569.
**Prerequisite(s):** (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
**Restriction(s):**
Cannot enroll if Class is Graduate
AAAS 470  Black Women / Lit, Film, Music  3 Credit Hours
This course will examine works produced by Black women authors, activists, filmmakers and musical performers in order to determine the methods they have incorporated in order to challenge and eradicate the prevailing stereotypes about Black women while advancing their own personal and racial agendas. It will also focus on the extent to which race, gender and class have shaped the creative work of Black women. Students will be required to read, discuss, analyze and write their own responses to the works of such firebrands as author Zora Neale Hurston, activist Ida B. Wells, filmmaker Julie Dash, and singer Billie Holliday.
Prerequisite(s): FILM 240 or FILM 248 or FILM 385 or AAAS 239 or AAAS 275 or HUM 303 or HUM 221 or HUM 222 or HUM 232 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 237 or ENGL 239 or ENGL 248 or ENGL 200 or ANTH 303 or PSYC 303 or SOC 303 or WGST 303
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters

AAAS 473  Race, Crime, and Justice  3 Credit Hours
This course is an analysis of race and its relation to crime in the criminal justice system. Students will analyze and interpret the perceived connection between race and crime, while exploring the dynamics of race, crime, and justice in the United States. This course is designed to familiarize students with current research and theories of racial discrimination within America’s criminal justice system.
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Cannot enroll if Class is Freshman

AAAS 477  African American English  3 Credit Hours
An examination of the structure, history and use of African-American English. Topics will include the pronunciation, grammar and vocabulary of African-American English, theories of origin, linguistic repertoire and code-switching in African-American communities, the Ebonics controversy, and the role of this variety in education and identity formation. Student cannot receive credit for both AAAS 477 and AAAS 577.
Prerequisite(s): LING 280 or LING 281 or LING 480
Restriction(s):
Can enroll if Level is Undergraduate

AAAS 491  Topics in African Diaspora  3 Credit Hours
This course deals with African Diasporan history from the 19th century to the present. The method is by definition cross-cultural and comparative, requiring that the works or figures under study represent a diversity of Diasporan nationalities and/or cultures. The course may focus on a wide range of topics. Students cannot receive credit for AAAS 491 and AAAS 591 when the topic title is the same.

AAAS 491C  Topics in AAAS  3 Credit Hours
Topic: Senior Research Seminar: Africa and the New World Diaspora. A history research seminar exploring the broad history of Africa and its descendants in the New World. Emphasis will be placed on a series of cross-cultural but interconnected themes including: African civilizations, the trans-Atlantic slave trade and comparative systems of servitude, the Haitian Revolution, the American Civil War, the European conquest of Africa, trans-Atlantic systems of inequality, the World Wars, the African intellectual renaissance, the Civil Rights Movement in the United States, and Independence Movements in Africa.
Prerequisite(s): HIST 300

AAAS 498  Thesis  3 Credit Hours
Students pursuing the AAAS minor or an area of focus in African and African American Studies may choose to complete their coursework with a final thesis project that reflects research interests developed during their course of study. This thesis, which can be used to fulfill three (3) hours of the required upper-division course work, will be written under the direction of a faculty member whose scholarly expertise is compatible with the research field(s) of the student. (OC).
Prerequisite(s): AAAS 275 or AAAS 239 or ENGL 239 or HIST 106 or AAAS 106
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

AAAS 499  Independent Study  3 Credit Hours
Students pursuing the AAAS minor as well as those interested in focusing on some particular area in African and African American Studies may wish to do research on a topic not covered in the regular AAAS curriculum. This course provides an opportunity for students to conduct such research under the direction of a qualified faculty member. The project must be defined in advance in writing. (OC).
Prerequisite(s): AAAS 275 or AAAS 239 or ENGL 239 or AAAS 106 or HIST 106
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

American Studies (AMST)

AMST 300  Comparat. American Identities  3 Credit Hours
This course will confront and complicate the following key questions: what does it mean to be an American? What is American culture? Participants in this course will respond to the questions central to the American Studies field by reading and discussing historical, sociological, literary, artistic, material culture, political, economic, and other sources. Students will use this interdisciplinary study to examine the multiple identities of Americans - as determined by factors such as gender, race, class, ethnicity, and religion. While emphasizing the diversity of American culture, participants will consider some core values and ideas uniting America both in historical and contemporary society. Students will be invited to seek out and share fresh narratives of the American experience.
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280
Restriction(s):
Can enroll if Level is Undergraduate

AMST 390  Topics in American Studies  3 Credit Hours
Examination of problems and issues in selected areas of American Studies. Title in the Schedule of Classes will change according to course content. Course may be repeated for credit when specific topics differ.
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

**Anthropology (ANTH)**

**ANTH 101 Introduction to Anthropology 3 Credit Hours**
Anthropology emphasizes the holistic study of human beings, in both the past and the present, and introduces students to the four primary sub-fields (sociocultural anthropology, linguistic anthropology, archaeology and biological anthropology) of the discipline. This course shows students how the sub-fields intersect to explain human biological and cultural diversity, and provides students with the ability to better understand their own culture in light of a globalized world, as well as the applied skills of the discipline. (F, W) 999999

**ANTH 201 Introduction to Archaeology 3 Credit Hours**
Through hands-on labs and comparison of different sites and research projects, this class provides a survey of the theoretical concepts and methods an archaeological anthropologist use to learn about people through material things. Considers topics such as site formation, sampling strategies, excavation methods, lab analyses, museum presentations, heritage laws, the history of archaeology, theoretical approaches, and archaeological ethics.

**ANTH 202 World Cultures 3 Credit Hours**
A comparative study of politics, economics, family and religion in selected cultures—foraging, tribal, peasant, and industrial. Provides a survey of theoretical concepts in social and cultural anthropology through the comparison of ethnographic case studies. ANTH 101 recommended. (YR).

**ANTH 215 Research Skills BSci 1 Credit Hour**
This course teaches foundational research and critical-thinking skills necessary for the success of students in the Behavioral Sciences (including Anthropology, Psychology, and Sociology) in conducting university-level research projects, papers, and other research assignments. Students will learn important research skills like distinguishing between scholarly and non-scholarly sources of information, using library search tools to find peer-reviewed and scholarly sources, evaluating and analyzing information sources and using them to build informed opinions and arguments, integrating and synthesizing sources, and using sources ethically. Students will learn these skills through lectures, practice and by applying them through a series of assignments. (F, W, S)

**ANTH 303 Intro To Women's & Gender Stud 3 Credit Hours**
This course provides an interdisciplinary overview of the key theories and topics in Women's and Gender Studies. Special attention is given to how gender intersects with class, race, nationality, religion and sexuality to structure women's and men's lives. Students are also introduced to methods of gender analysis and will begin to apply these methods to topics such as women and health, gender roles in the family, violence against women, and gendered images in the mass media.

**ANTH 307 Forensic Anthropology 3 Credit Hours**
Forensic anthropology has recently seen a lot of exposure through popular television shows like CSI and Bones. Have you ever wondered how much of what you were seeing was real? Do the dead really "talk" about their lives and how they died? This course is designed as an introductory course for students interested in demystifying and getting to know the real forensic anthropology. Forensic anthropology is a specialized sub-field of biological anthropology that applies many of the methods of biological anthropology to the discovery, excavation, and identification of human remains in a medicolegal context. In this class we learn about the human skeleton and explore the key methods that are used in the identification of individuals, such as age-at-death estimation, sex determination, stature, ancestry, and personal identification. We also deal with assessment of the different types of trauma, and whether or not we can tell the cause and manner of death. The broader ethical roles and responsibilities of forensic anthropologists are also discussed, including discussions of how we determine race/ancestry, as well as ethical responsibilities we have during the investigation of human rights abuses, disasters and criminal inquiries. (F)

**ANTH 311 Archaeology of Inequality 3 Credit Hours**
Inequality has a history. This class explores these histories through archaeology with a focus on the material culture of the last 500 years. While we have written records from this time, material remains such as buildings, pottery, and human bones reveal far more. The mundane details of daily life are where inequality and injustice were (and are?) created, enforced, and resisted, and these mundane details are the material of archaeology. (OC)

**ANTH 330 Independent Study in Amer Studies 1 to 3 Credit Hours**
The independent study is designed for American Studies majors to provide an opportunity for pursuing a significant scholarly project that explores a topic of interest in American Studies while synthesizing insights gained from prior coursework in American Studies. The course can be repeated for up to 6 credits.

**Prerequisite(s):** AMST 300 or HIST 3602 or ENGL 306 or SOC 306 or COMM 306
**Restriction(s):** Can enroll if Class is Senior
Can enroll if Major is American Studies

**AMST 499 Ind. Study in Amer Studies 1 to 3 Credit Hours**
Can enroll if Class is Senior
Can enroll if Major is American Studies

**AMSC 200 Introduction to Sociology 3 Credit Hours**
This class provides a survey of theoretical concepts and selected cultures--foraging, tribal, peasant, and industrial. Provides a survey of theoretical concepts in social and cultural anthropology through the comparison of ethnographic case studies. ANTH 101 recommended. (YR).

**ANTH 101 Introduction to Anthropology 3 Credit Hours**
Anthropology emphasizes the holistic study of human beings, in both the past and the present, and introduces students to the four primary sub-fields (sociocultural anthropology, linguistic anthropology, archaeology and biological anthropology) of the discipline. This course shows students how the sub-fields intersect to explain human biological and cultural diversity, and provides students with the ability to better understand their own culture in light of a globalized world, as well as the applied skills of the discipline. (F, W) 999999

**ANTH 201 Introduction to Archaeology 3 Credit Hours**
Through hands-on labs and comparison of different sites and research projects, this class provides a survey of the theoretical concepts and methods an archaeological anthropologist use to learn about people through material things. Considers topics such as site formation, sampling strategies, excavation methods, lab analyses, museum presentations, heritage laws, the history of archaeology, theoretical approaches, and archaeological ethics.

**ANTH 202 World Cultures 3 Credit Hours**
A comparative study of politics, economics, family and religion in selected cultures—foraging, tribal, peasant, and industrial. Provides a survey of theoretical concepts in social and cultural anthropology through the comparison of ethnographic case studies. ANTH 101 recommended. (YR).

**ANTH 215 Research Skills BSci 1 Credit Hour**
This course teaches foundational research and critical-thinking skills necessary for the success of students in the Behavioral Sciences (including Anthropology, Psychology, and Sociology) in conducting university-level research projects, papers, and other research assignments. Students will learn important research skills like distinguishing between scholarly and non-scholarly sources of information, using library search tools to find peer-reviewed and scholarly sources, evaluating and analyzing information sources and using them to build informed opinions and arguments, integrating and synthesizing sources, and using sources ethically. Students will learn these skills through lectures, practice and by applying them through a series of assignments. (F, W, S)

**ANTH 303 Intro To Women's & Gender Stud 3 Credit Hours**
This course provides an interdisciplinary overview of the key theories and topics in Women's and Gender Studies. Special attention is given to how gender intersects with class, race, nationality, religion and sexuality to structure women's and men's lives. Students are also introduced to methods of gender analysis and will begin to apply these methods to topics such as women and health, gender roles in the family, violence against women, and gendered images in the mass media.

**Res...
ANTH 315  Body Image and Culture  3 Credit Hours
This course examines the biological and sociocultural construction of body image in both men and women. We explore such cultural and social practices as nudity, tattooing, piercing, scarification, dietary habits, physical activity and sports performance and their associated myths and realities. We explore how the human body is a terrain of contested meaning within society. The course provides an examination of the causes and consequences of women’s poor body image, contemporary and historically. Course materials include case studies from North America, Europe, Africa, Asia and the Pacific.
Prerequisite(s): ANTH 101 or WST 275 or WGST 275 or WGST 303 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or PSYC 303 or SOC 303 or ANTH 303

ANTH 320  Culture and Int’l Business  3 Credit Hours
Lectures, exercises and case studies explore anthropological concepts needed by managers in multinational and multi-ethnic work environments. Topics include the world economy in anthropological perspective, national culture and business culture, implicit values about work and time, and cross-cultural communication. Special emphasis is given to Japan and the Third World. ANTH 101 or SOC 200 recommended. (AY).

ANTH 321  Untold Caribbean: Field Course  3 Credit Hours
Full Course Title: Dark History and Untold Stories: Field Class in Caribbean Historical Archaeology. Field Class: involves international travel and required costs in addition to tuition. This class explores the story behind Caribbean "paradise". We use the analytical methods of historical archaeology to "read" sites of enslavement and resistance, as well as modern museum interpretations of Caribbean heritage, and engage in the production of new archaeological knowledge through excavation. We will ask how negative or "dark" history should be remembered, what life was like on Caribbean plantations, and how histories of slavery are relevant now. Throughout, we will examine how archaeology can tell the untold stories of the many people-black, white, free, and enslaved-who never made it into the history books. We will also contribute new voices with a "mini-field season" of archaeological excavation: students can gain a glimpse into scientific archaeology, and get to try out fieldwork to see if they would gain from a full field school. (S,OC)

ANTH 325  Anth of Health and Environment  3 Credit Hours
Cultural conflicts over pollution, disease etiology, development and natural resources often originate and are played out in local ecosystems. Anthropologists are increasingly becoming involved as researchers, developers, and activists in these cultural strifes. This course reviews the work of environmental and medical anthropologists as well as other critical scholars who unravel the values, meanings and ideologies associated with ecological issues in given localities. Drawing on theoretical advances in critical medical anthropology, environmental anthropology and applied anthropology the course seeks to improve the knowledge and abilities of student anthropologists in their environmental health work.

ANTH 331  Human Evolution  3 Credit Hours
A survey of biological anthropology. This course is a prerequisite for all other upper-division bioanthropology courses. Topics include the human place in nature, primate biology and behavior, evolution theory, genetics, the fossil evidence for human evolution, human growth, and biocultural adaptation to the environment. (YR).

ANTH 336  Introduction to Primates  3 Credit Hours
Introduction to the fundamentals of primate paleontology, evolution, morphology, and behavior with an emphasis on understanding the evolution of primate and human social behavior. (YR).

ANTH 340  Race and Evolution  3 Credit Hours
An evolutionary survey of the biological differences among human populations in response to such factors as climate, culture, disease, nutrition, and urbanization. The meaning of racial variation is discussed in terms of adaptation to environmental stress. "Race" is rejected; racism is discussed. (AY).

ANTH 341  Human Paleontology  3 Credit Hours
A survey of the evolutionary history of life through the study of fossils and collaborative field and laboratory material. The evolution of humans and the primate order of mammals is emphasized. (AY).

ANTH 345  Cultural Ecology and Evolution  3 Credit Hours
An introduction to the study of human ecology. This course employs the case-study method to develop an evolutionary and biocultural perspective on the relationship between human beings and their environments. (YR).

ANTH 350  Prehistoric Archaeology  3 Credit Hours
Uses archaeological evidence to explore issues of central importance to the present, such as the biological evolution of our species, the creation of new technologies, the switch to arming, the rise of social inequality, and the beginnings of cities. Considers archaeological sites in the US, Egypt, India, China, Europe, Mesopotamia, Mexico, Peru, and elsewhere from 7 million to 500 years ago.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 360  Myth, Magic, and Mind  3 Credit Hours
A broadly based introduction to the range of human mythical and magical traditions. Sophomore standing; ANTH 101 highly recommended. (YR).
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 370  Indians of North America  3 Credit Hours
The origin and development of cultures north of Mexico. A study of various culture areas and representative tribes at contact, and a political-economic analysis of the fate of American Indians since contact. The perspectives of Native American peoples are taken into account through books, novels, and poetry. Sophomore standing; ANTH 101 highly recommended. (YR).
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 371  African Exper in the Americas  3 Credit Hours
This course is a survey of African populations and cultures from 1500 to the present throughout the Americas. The focus is on Caribbean and Latin American contexts of these populations, but comparisons to North America will be made. Topics include slavery, the relationship between Africans and indigenous populations, religions, politics, music, and questions of race and ethnicity. Readings will include ethnographic description, history, biography and fiction. (YR).

ANTH 372  Anthropology of Latin America  3 Credit Hours
The course is a survey of Latin American people and cultures from the conquest to the present. It will focus on culture change and sources of conflict by analyzing topics that include the economy, kinship, ethnicity, social stratification, gender, politics, religion, and the arts. Readings will include ethnographic description, history, biography, contemporary fiction. (YR).
ANTH 373 Anth Persp on the Middle East 3 Credit Hours
This course examines Middle Eastern society from a cultural perspective. Topics discussed include kinship, gender, popular and orthodox Islam, nationalism, mass media, urbanization, and historical relations with the West. The course ends with an examination of the Arab immigrant experience in Metro Detroit. (AY).

ANTH 374 Anthropology of Europe 3 Credit Hours
Introduces anthropological approaches to European culture, emphasizing ethnographies and community studies as well as social history from the classical and medieval to the present. Will include cultural implications of industrialism and urbanization. May focus on Western or Eastern Europe during a given semester. (AY).

ANTH 376 Power & Privilege in SE Mich 3 Credit Hours
An examination of the social and cultural systems that lead to power, privilege, and inequality in American culture. This course takes a local perspective, analyzing systems of inequality as related to such factors as race, ethnicity, gender, social class and sexual orientations. Field trips to local sites are included. (YR)

Restriction(s):
Cannot enroll if Class is Freshman or Graduate

ANTH 381 Who Owns the Past? 3 Credit Hours
The past is not neutral. This class explores this idea, recognizing how representations of and stories about the past play a role in modern discussions and conflicts. Issues such as race, religion, national sovereignty, and both individual and group rights to self-determination, education, and property are all deeply entwined with how we learn about and tell each other about the past. We consider archaeological and historic sites and controversies in Asia, Africa, the Mideast, and the US, and focus on discussion and argumentative writing skills. (OC)

ANTH 390 Topics in Anthropology 3 Credit Hours
Examination of problems and issues in selected areas of anthropology. Title in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

Prerequisite(s): ANTH 101

ANTH 391 Topics in Anthropology 3 Credit Hours
Examination of problems and issues in selected areas of anthropology. Title in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. Junior standing required. (OC).

ANTH 397 Honors Tutorial 3 Credit Hours
Advanced seminar on selected topics offered through honors program. (OC).

Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 397A Honors Tutorial 3 Credit Hours
Topic: Sugar, Salt, and Fat. This tutorial takes an historical, anthropological, and biological approach to the use of sugar, salt, and fats in the human diet. People have biological requirements for sugar and salt, and these nutrients have important biological impacts on people. At the same time, the need for these nutrients forces people to migrate great distances; create new technology for production, transport, and consumption of foods containing these nutrients; organize and reorganize their social groups; and develop new economic and political organizations. Specific topics will be the rise of colonialism, slavery, global trade, and the anthropology of eating.

Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 398 Independent Studies in Anthr 1 to 6 Credit Hours
Readings or analytical assignments in anthropology in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor. Permission of instructor required. (F,W).

ANTH 399 Independent Studies in Anthr 1 to 6 Credit Hours
Readings or analytical assignments in anthropology in accordance with the needs and interest of those enrolled and agreed upon by the student and instructor. (F,W).

Prerequisite(s): ANTH 101

ANTH 406 Culture and Sexuality 3 Credit Hours
The study of women, men, children, socialization practices, and the genesis of sex roles cross-culturally. Students cannot receive credit for both ANTH 406 and ANTH 506. ANTH 101 recommended. (YR).

Prerequisite(s): ANTH 101 or WST 275 or WGST 275 or WGST 303 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

ANTH 407 Sexual Praxis and Theory 3 Credit Hours
This course will offer an overview of sexual differences including: the socio-cultural construction of gender, sexual behavior, and orientation; sex and sexualities in language and literature; and diversity by race, class, and cultural heritage. These topics will enable students to understand human sexuality within and across a continuum removing notions of duality, or polarity, in sexual behaviors and orientations. Examples both from within Western society and from non-Western societies may be used to further this position. Theoretical perspectives may encompass sociological and anthropological work, literary theory and criticism, queer theory, and multi-disciplinary discussions/discourse. Texts may include: Sex and the Machine. Readings in Culture, Gender and Technology, The Anatomy of Love, The Lesbian and Gay Studies Reader, Second Skins: The Body Narratives of Transsexuality, and Lesbian and Gay Marriage.

Prerequisite(s): WST 275 or WGST 275 or SOC 443 or PSYC 405 or ANTH 406 or ANTH 101 or WST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275

ANTH 409 Human Body, Growth & Health 3 Credit Hours

Restriction(s):
Can enroll if Class is Junior or Senior

ANTH 410 Archaeological Field School 3 Credit Hours
While participating in a primary archaeological research project, students learn the methods and techniques of field archaeology and basic laboratory work, gaining experience in the scientific research process and complex problem-solving. Depending on the project, some aspects included will be survey, excavation, mapping, historical background research, and/or artifact conservation and analysis.

Prerequisite(s): ANTH 101 or ANTH 201

ANTH 411 Archaeological Lab Methods 3 Credit Hours
How can we learn about people from the things they leave behind? This class teaches students about the 18th and 19th century material culture and how archaeological analysis creates insights about past lives through these things. This is done through hands-on participation in primary archaeological laboratory research: conservation, identification, dating, cataloging, and interpreting archaeological artifacts.
ANTH 412 Men and Masculinities 3 Credit Hours
This course addresses the question, "What is a man?", in various historical, cross-cultural, and contemporary contexts. A major focus on the social and cultural factors that underlie and shape conceptions of manhood and masculinity in America as well as in a variety of societies around the globe. (AY).
Prerequisite(s): ANTH 101 or ANTH 201
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

ANTH 415 Nutrition and Health 3 Credit Hours
The influence of nutrition on physical and mental development from conception to adulthood. Topics include: 1) the definition and function of the essential nutrients for people, 2) basic principles of human growth and development, 3) the causes and consequences of under- and overnutrition, 4) feeding practices for infants and children and the development of food habits, 5) nutrient and food problems in the local region and in global perspective. Students cannot receive credit for both ANTH 415 and ANTH 515. (YR).
Restriction(s):
Can enroll if Class is Junior or Senior

ANTH 420 Kinship and Marriage 3 Credit Hours
A study of the diversity of kinship and marriage systems, and of the history of kinship theory which has played a seminal role in the development of general anthropological theory. Students cannot receive credit for both ANTH 420 and ANTH 520. (OC).
Prerequisite(s): ANTH 101 or ANTH 201
Restriction(s):
Can enroll if Level is Undergraduate

ANTH 421 Education and Culture 3 Credit Hours
How and where do people learn? Why are there schools, and how is schooling culturally organized? Why do school experiences tend to vary by "race", social class, and gender? What insights does anthropology bring to practical problems of learning and teaching? Students cannot receive credit for both ANTH 421 and ANTH 521. ANTH 101 or SOC 200 recommended. (AY).
Restriction(s):
Can enroll if Level is Undergraduate

ANTH 422 Narrative Anthropology 3 Credit Hours
A consideration of alternative approaches to gaining ethnographic understandings by reading anthropological novels (Bohannan, LeGuin), fiction and poetry by non-western authors (Silko, Achebe), and travel writing (Chatwin, O'Hanlon). Junior standing; ANTH 101 highly recommended. (YR).
Restriction(s):
Can enroll if Class is Junior or Senior

ANTH 425 Language and Society 3 Credit Hours
An examination of the social functions of speech through readings and exercises, emphasizing schools and other applied settings. Topics include ethnic and social class dialects, codeswitching, and the organization of conversation. Students cannot receive credit for both ANTH 425 and ANTH 525. (OC).
Restriction(s):
Can enroll if Level is Undergraduate

ANTH 430 Medical Anthropology 3 Credit Hours
A comprehensive examination of how culture mediates processes of illness and healing. Comparative materials are examined which provide a context for an anthropological analysis of modern biomedicine. Sophomore standing; ANTH 101 highly recommended. (YR).
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 435 Human Genetics 3 Credit Hours
An analysis of human genetic variation in terms of the theory of population genetics considers such polymorphisms as blood groups and variant hemoglobins as well as morphological characters like stature, skin color, and so on. Emphasis is on the genetics of human populations and particular attention is drawn to cultural factors affecting human biology. (OC).

ANTH 440 Religion and Culture 3 Credit Hours
An introduction to the comparative study of religious systems. Explores religious beliefs and practices in non-Western cultures; surveys theoretical approaches to the study of religion; and discusses how religions grow, develop, and change. ANTH 101 recommended. (YR).

ANTH 444 Political Anthropology 3 Credit Hours
A consideration of some of the major anthropological views of politics, focusing on the relations of power to kinship, stratification, and religion in both states and stateless societies. Sophomore standing; ANTH 101 highly recommended. (OC).

ANTH 450 Anthropological Theory 3 Credit Hours
An historical account of the development of anthropological theory, emphasizing the continuity between consecutive styles of explanation. Substantial consideration of recent theoretical developments in structuralism and ecological analysis. Sophomore standing; ANTH 101 highly recommended. (OC).

ANTH 451 Family, Sexuality, Rights 3 Credit Hours
This course investigates the changing possibilities for forming families and expressing sexuality, with a focus on how nation states and legal and cultural systems construct and respond to these changes. Selected topics include the meanings of sex, love, marriage, and relatedness in different historical moments; struggles for recognition of varied kinship and family arrangements, such as interracial, interfaith, same-sex, polygamous and multi-partner relationships; and new technologies and their implications for family life. (YR)
Prerequisite(s): (WGST 303 or SOC 303 or ANTH 303 or PSYC 303 or HUM 303) or (SOC 200 or SOC 201) or (ANTH 101 or ANTH 202)
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 455 Immigrant Cultures and Gender 3 Credit Hours
The history and culture of immigration since 1850, including: (1) formation and perseverance of immigrant communities and interethnic boundaries; (2) relations between the homeland and the immigrant; and (3) impact of migration on family life and gender roles. Students cannot receive credit for both ANTH 455 and ANTH 555. ANTH 101 recommended. (OC).
Restriction(s):
Can enroll if Class is Junior or Senior
ANTH 459  Human Osteology  3 Credit Hours
An introduction to the methods and theory of human osteology, bone history, pathology, biomechanics and taphonomy. Osteology lecture topics include age, sex, stature and ancestry estimation, the problems of commingling and differential disease diagnosis. The lab component provides hands-on skills. The course investigates how the forensic anthropologist can apply skills to human rights and police investigations and the nuances distinguishing theoretical approaches of forensic anthropology and bioarchaeology.
Prerequisite(s): ANTH 331 or BIOL 130
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

ANTH 460  Economic Anthropology  3 Credit Hours
A comparative examination of the basis of political economy. Economic problems (the production and distribution of goods and services) will be considered in ecological, evolutionary, and political terms. The primary emphasis will be on traditional economies, on production and exchange at the household level, and on the effect of modern market systems on indigenous cultures. (OC).
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ANTH 470  Doing Anthropology  3 Credit Hours
A practicum of anthropological theory and method, including ethnographic interview and participant observation. Students will conduct field research and evaluate results with the help of classmates. Students cannot receive credit for both ANTH 470 and ANTH 570. ANTH 101 or SOC 200 highly recommended. (YR).
Restriction(s):
Can enroll if Level is Undergraduate

ANTH 477  Ethnographic Film  3 Credit Hours
This course will analyze ethnographic films as a medium for the construction of meaning in and across cultures. It will teach students to understand how the putatively "real" content of documentary film creates a mixture of fantasy, news and "science." Covering texts as varied as National Geographic photographic layouts, traditional ethnographic films made by anthropologists, and auto-ethnographies of cultural groups such as Native Americans and the Trobriand Islanders of Papua, New Guinea, the course will aim to deconstruct such oppositions as indigene vs. alien, us vs. them, and self vs. other. Students cannot receive credit for both ANTH 477 and ANTH 577. (AY)
Prerequisite(s): FILM 248 or HUM 248 or ANTH 101 or ENGL 248 or JASS 248

ANTH 481  Gender and Globalization  3 Credit Hours
Mass media, politics, and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women's lives, gender relations, and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism, and environmental challenges. Rather than survey international women's movements, this course explores how globalization reformulates identities and locations and the political possibilities they create. (AY)
Prerequisite(s): ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters

ANTH 482  Psychological Anthropology  3 Credit Hours
Cross-cultural comparison of theories of human nature, including psychoanalytic anthropology, culture-and-personality, and other theories from Western science, as well as non-Western theories about such concepts as the person, emotions and mental illness. Students cannot receive credit for both ANTH 482 and ANTH 582. ANTH 101 and PSYC 170 or 171 highly recommended. (YR)

ANTH 495  Anthropology Capstone  3 Credit Hours
Full Title: Anthropology Capstone: Contemporary Issues in Anthropology
This course is designed as a capstone for anthropology majors, and it will provide a well-rounded conclusion to undergraduate studies in anthropology. This course has three primary goals in mind: 1) to explore and critically evaluate contemporary anthropological method and theory around a central theme; 2) to provide students with opportunities to gain real research skills; and 3) to help students prepare for the job market inside and outside of academia. (W,YR)
Prerequisite(s): ANTH 101
Restriction(s):
Can enroll if Class is Junior or Senior

ANTH 498  Independent Study  1 to 6 Credit Hours
Readings or analytical assignments in anthropology in accordance with the interests and needs of students enrolled and agreed upon by the instructor and student. Written permission of instructor required.

ANTH 499  Readings in Anthropology  1 to 3 Credit Hours
For students desiring study not available in the regular course offerings. Students cannot receive credit for both ANTH 499 and ANTH 599. (F,W)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Applied Music (MAPP)

MAPP 120  Private Instruct in App Music  1 Credit Hour
For students who desire credit for private lessons on a musical instrument of voice. The lessons are taken outside the University from an instructor approved by the music faculty of the University. Interested students should contact the music faculty at the beginning of the term to arrange for a teacher. 8 hours of instruction over 16 weeks are required for 1 hour of credit. This course may be repeated for up to 8 hours of credit. The student pays the instructor's fee and also tuition for university credit. (F,W)

MAPP 125  Class Piano I  2 Credit Hours
Development of skills at the keyboard in harmonization, improvisation, sight reading, accompanying, repertoire, and technique. Emphasis on group learning for beginners. (OC).

MAPP 126  Class Piano II  2 Credit Hours
Enhancement of skills at the keyboard in harmonization, improvisation, sight reading, accompanying, repertoire, and technique. Emphasis on group learning for beginners. (OC).

MAPP 135  Class Guitar I  2 Credit Hours
Development of skills in reading chord tablature, playing basic accompaniments to folk songs using various strumming and fingerpicking techniques, basic theory, reading, playing rhythms and notes. Emphasis on group learning for beginners. (OC).
MAPP 136  Class Guitar II  2 Credit Hours
Enhancement of skills in reading chord tablature, playing basic accompaniments to folk songs using various strumming and fingerpicking techniques, basic theory, reading, playing rhythms and notes. Emphasis on group learning for beginners. (OC).

MAPP 138  Symphonic Band  1 Credit Hour
Credit may be earned by students who are regular members of approved symphonic bands.

MAPP 145  Choir  1 Credit Hour
One hour of credit per semester may be earned by students who are members of the UM-Dearborn choral ensemble. There will be a concert performance every semester which will be open to the general public. (F,W).

MAPP 299  Independent St in Appl Music  1 to 2 Credit Hours
This course assumes a sound knowledge of basic technique and music theory, as covered in MAPP 126 or MAPP 136. Material covered in the course is selected in accordance with the needs and interests of those enrolled and agreed upon by the instructor and the student.
Prerequisite(s): MAPP 126 or MAPP 136

MAPP 320  Adv Private Instr in App Music  1 to 2 Credit Hours
For advanced students in applied music. The lessons are taken outside the University from an instructor approved by the music faculty of the University. Interested students should contact the music faculty at the beginning of the term to arrange for a teacher. 8 hours of instruction over 16 weeks are required for 1 hour of credit. This course may be repeated for up to 8 hours of credit. Each student is required to pass a jury exam or perform publicly during each semester. The student pays the instructor's fee and also pays tuition for university credit.
Prerequisite(s): MAPP 299

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F,W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally

Arab American Studies (AAST)

AAST 228  Intro to Lit: Arab American  3 Credit Hours
This course in an introduction to Arab American literature, its historical and cultural contexts and contemporary relevance. Topics will include the literary and cultural productions of Arab immigrants, their transnational vision, and explorations of such concepts as home, memory and identity; the literary, dramatic and poetic responses of Arab American writers to 9/11 and the ongoing war on terror; the role Arab American literature in offering different versions of Arab and Arab American lives and experiences from the one circulated in mainstream media, Hollywood cinema and culture.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40

AAST 267  Arab & Arab American Workshop  3 Credit Hours
The Arab and Arab American Writers Workshop is a creative writing workshop focusing on poetry and fiction. Students will explore Arab American literature, writers, and themes. Students are expected to work on their own manuscripts as well as critique outside readings. The workshop will be conducted under the guidance of Arab and Arab American faculty and is open to all students.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40

AAST 3150  Intro to Arab American Studies  3 Credit Hours
This course explores the local, national, and global conditions through which Arab American identity and its alternatives take shape. It introduces students to humanities and social science approaches to the field of Arab American Studies.
Restriction(s):
- Can enroll if Class is Freshman or Sophomore or Junior or Senior

AAST 3151  Public Cultural Work  3 Credit Hours
Full Title: Public Cultural Work in Arab Detroit. This course explores the field of public humanities work while providing a topical focus on metro-Detroit based Arab American history and culture. Roughly half of the course will be used to explore different approaches to public humanities work undertaken by scholars. The second half of the course will provide the historical and social context for understanding a particular research question to be examined jointly by the instructor, students, and a local cultural institution. Students will engage in intensive research and work with a cultural institution to represent their findings to the public. (W)

AAST 3634  History of Islam in the US  3 Credit Hours
This course traces the long history of Islam and of Muslims in the United States (1730s-present), paying careful attention to the interaction among Muslims across the dividing lines of race, gender, immigrant generations, sect, political orientation, and class, and between Muslims and other Americans.
Restriction(s):
- Can enroll if Class is Freshman or Sophomore or Junior or Senior

AAST 3676  Arab Americans Since 1890  3 Credit Hours
This is a survey of immigration from the Arab Middle East from 1890 to the present. Readings from available scholarship, discussions, and reports facilitate exploring the Arabic-speaking immigrants? early and recent experiences as art of U.S. society, including settlement, work, worship, military service, leisure, intellectual life, and primary and formal affiliations across the U.S.

AAST 381  Intro to Postcolonial Studies  3 Credit Hours
This course offers a general introduction to Postcolonial Studies - a field of cultural inquiry that questions how personal identity (specifically race, language, and ethnicity) shapes, and is shaped by, the politics of colonization and nationalism. Students will clarify the subject of Postcolonial Studies by examining a variety of cultural and linguistic objects (literature, film, TV-journalism, slave- and middle-passage-narrative, and political manifesto) from a variety of cultural perspectives (Arab American, Anglo-Indian, West African, and Caribbean).
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250

AAST 390  Topics in Arab American Study  3 Credit Hours
Examination of various topics dealing with Arab American Studies. Titles will change according to content and schedule of classes. Course may be repeated for credit when specific topic differs. (OC).
AAST 4677  Arab American Identity  3 Credit Hours
Extensive discussions and critical analysis of the main markers of Arab American identity formation from late nineteenth century to present. This seminar provides in-depth assessments of immigrant narratives from various sources and disciplinary approaches on specific racial, ethnic, and gender experiences within the larger U.S. context. Additional assignments distinguish the graduate version of this course from the undergraduate version.
Prerequisite(s): HIST 300
Restriction(s):
Can enroll if Level is Undergraduate

AAST 4678  Middle Eastern Diasporas  3 Credit Hours
This course explores the diasporas of Arabs, Turks, Assyrians, and Iranians living in Europe and the Americas that have occurred since the 1880s. It pays careful attention to how "aspects of diaspora" shape, mimic, transect, and undermine the political and economic regimes of which they are part. The reception of Middle Eastern communities in different national contexts and historical periods receive special attention as do their adaptive strategies as religious, ethnic, gendered, and racialized minorities. Those enrolled in the graduate level of the course pursue additional readings and assignments.
Prerequisite(s): AAST 3150 or HIST 300
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

AAST 473  Arab American Women Writers  3 Credit Hours
This course examines the literary and cultural contributions of Arab and Arab American women novelists, poets, filmmakers and artists to the development and consolidation of cultures of understanding and coexistence; explores the relations between, among others, citizenship and belonging, race and national security, gender and geographical mobility, and ethnic minorities and mainstream consciousness; stresses how literary and artistic productions of Arab and Arab American women writers and artists fosters alternative visions of socio-cultural coexistence, dialogue, and hospitality by means of technical and stylistic experimental and renovation. For graduate credit take AAST 573.
Students cannot receive credit for both AAST 473 and AAST 573.
Restriction(s):
Cannot enroll if Class is Freshman

AAST 490  Topics in Arab Amer Studies  3 Credit Hours
The content of this course will vary. All courses which will run under this number will cover Arab American issues.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Arabic (ARBC)

ARBC 101  Beginning Arabic I  4 Credit Hours
First course in the two-course elementary Arabic sequence. Listening comprehension, speaking, reading, writing, and culture are emphasized. Course materials promote the use of language to communicate with others and function in Arabic culture. (F,W,S).

ARBC 102  Beginning Arabic II  4 Credit Hours
Second course in the two-course elementary sequence. Continued emphasis on culture and the four skills of listening, speaking, reading, and writing. (F,W,S).
Prerequisite(s): ARBC 101 or MCL 101 or APL with a score of 102 or APL with a score of 201 or APL with a score of 202 or APL with a score of 301 or APL with a score of 302

ARBC 201  Intermediate Arabic I  4 Credit Hours
An intermediate-level course designed to increase proficiency in listening, speaking, reading, and writing in a cultural context. Emphasis is placed on acquiring new vocabulary and expanding the use of grammar structures. (YR).
Prerequisite(s): ARBC 102 or MCL 102 or APL with a score of 201 or APL with a score of 202 or APL with a score of 301 or APL with a score of 302

ARBC 202  Intermediate Arabic II  4 Credit Hours
Second course in the two-course intermediate Arabic sequence. Continued emphasis on the development of the four skills of listening, speaking, reading, and writing.
Prerequisite(s): ARBC 201 or MCL 201 or APL with a score of 202 or APL with a score of 301 or APL with a score of 302

ARBC 301  Higher Intermediate Arabic I  3 Credit Hours
This course is designed for students who have already had the equivalent of four semesters of Arabic instruction. The course emphasizes the four language skills with specific attention to the productive skills, oral and written. The course introduces authentic reading materials drawn from different disciplines such as religion, literature, history, and politics, reflecting different styles of Arabic and different periods. (F)
Prerequisite(s): ARBC 202 or APL with a score of 301 or APL with a score of 302

ARBC 302  Higher Intermediate Arabic II  3 Credit Hours
A continuation of ARBC 301. It continues to develop the four language skills with specific attention to the productive skills, oral and written. The course introduces authentic reading materials drawn from different disciplines such as religion, literature, science, politics, reflecting different styles of Arabic and different periods. (W, YR)
Prerequisite(s): ARBC 301 or APL with a score of 301 or APL with a score of 302

ARBC 303  Advanced Arabic  3 Credit Hours
This course is an introduction to narrative traditions in Arabic through the close readings of a variety of essays. It is designed to give students experience in reading specialized short texts including modern Arabic literature and the social sciences. Each session will be organized around a particular author, genre, theme, or period, including the novel, political essay, the short story, historical prose, drama, and film, with special emphasis on the Arabic literature of Egypt and the Levant.
Prerequisite(s): ARBC 302
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

ARBC 305  Language of Business  3 Credit Hours
An introduction to the language and cultural practices of the Arab world of business. Particular emphasis will be placed on learning the terminology used in typical business correspondence and documents related to the world of finance, investment, import, and export, and commerce. A variety of businesses will be examined and opportunities for practice in reading and composing business letters will be provided. (W, AY)
Prerequisite(s): ARBC 301
ARBC 331  Survey of Arabic Literature  3 Credit Hours
Arabic 331 surveys selections from writings in Arabic prose literature (maqama, novel, short story) and poetry that reflect the intellectual, literary and cultural development of the Arabs from pre-Islamic times, up to the present. The course will also explore the social, political, and cultural changes in the Middle East and the development of modern Arabic literary forms.  
Prerequisite(s): ARBC 301

ARBC 332  Arabic Cinema  3 Credit Hours
The course examines the development of Arabic cinema in its socio-cultural contexts through a range of selected films. It covers the different cinematic genres, prevalent themes and diverse trends and schools across the spectrum of Arab countries including Egypt, Tunisia, Lebanon, Morocco, and Palestine. The course elaborates on the careers of film directors and their approaches to film making and to the cultural issues of their time. The course will be conducted in Arabic.
Prerequisite(s): ARBC 301

ARBC 335  Arabic Civilization  3 Credit Hours
This course gives students an appreciation of Arabic civilization through the study of excerpts from the masterworks of the literary and intellectual Arabic heritage. It provides practice in reading pre-modern and modern classical Arabic texts drawn from a variety of intellectual disciplines. Students may not receive credit for both MCL 3350 and ARBC 335.  
Prerequisite(s): ARBC 302
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

ARBC 350  Arabic Literature and Culture  3 Credit Hours
An introduction to the literature and other art forms of the modern Arab world in cultural and historical context. Topics include the Arab worldview, religious attitudes and self-expression, and ethnicity and gender. The course assumes no prior knowledge of the region. All readings will be in English translation. (YR).

ARBC 351  Contemporary Arabic Literature  3 Credit Hours
This course will explore the literary works of contemporary Arab writers from countries such as Iraq, Lebanon, Palestine, Algeria, France, and the U.S. Although the course covers a variety of literary genres such as the short story, memoirs, and poetry, it puts special emphasis on the Arab contemporary novel. It also provides an in-depth critical analysis of major themes dealt with by authors in their works such as identity, minority, gender, nationality, war, family, ethnicity, religion, homeland and home, politics, society and culture. Major historical, political, social, cultural, artistic and literary factors shaping and driving contemporary Arabic literary writings today also will be thoroughly examined. The course will feature films and documentaries in addition to internet-based activities.  
Prerequisite(s): ARBC 301

ARBC 390  Topics in Arabic  3 Credit Hours
Examination of problems and issues in selected areas of Arabic. Title as listed in Schedule of Classes will change according to content. Course may be repeated when specific topics differ. (OC).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Art Applied (ART)

ART 201  Beginning Painting  3 Credit Hours
Lectures on the fundamentals of painting along with work in the studio. Basic ideas of structure, composition, and color are explored through individual and group instruction. Students work from still-life and from the model. This is a broad introductory painting course designed for the student unfamiliar with fundamentals of design and color. Material: acrylics. (YR).

ART 202  Beginning Drawing  3 Credit Hours
Lectures alternate with studio work in the investigation of drawing fundamentals. Students receive individual and group instruction as they work from still life setups, nature, and from the model. Emphasis is placed on the development of critical skills and perceptual drawing techniques for students with little or no studio experience. Pastel, charcoal, conte, pencil, and inks will be used. (YR).

ART 204  Beginning Watercolor  3 Credit Hours
Through lectures and studio work, students will explore the fundamentals of watercolor painting. To demonstrate the dynamics of the medium, a variety of approaches and techniques will be used, including realistic, abstract, and experimental painting. Subject matter includes still life, the figure, possible outdoor sketching and painting from the imagination. All levels of students are given individual guidance. (YR).

ART 206  Basic Design-Color  3 Credit Hours
Students will be introduced to the complex and diverse subject of color. The areas of study include principles and theories of color, practical application and technique, and the phenomenon of color interaction. The art elements (line, shape, value, space, form, and texture) and design principles will be applied within specific assignments. Compositional concerns and creative problem solving will be emphasized. (YR).

ART 210  Beginning Digital Design  3 Credit Hours
In this course students acquire practical and conceptual skills needed to create, select, and use digital illustrations and digital typographic designs. Students will develop proficiency in the use of digital art generating software, such as Adobe Illustrator. Students also learn and apply design concepts, layers, composition and color theory. Students will utilize analog sketching as a basis for their creative work, and learn to digitally convert these sketches to digital drawings and typeface. The course will also examine the history of design and typography to provide context and support for the creative process. The understanding of these topics will be developed and assessed through visual examination of completed projects, reading, critical discussion and writing that consider the connotative and denotative meaning of project solutions. (YR)

ART 220  Intro to Digital Photography  3 Credit Hours
This course focuses on the creative use of digital imaging software and hardware. Students are exposed to contemporary artists and professionals working in traditional and digital photography. Students also consider critical issues surrounding the aesthetic, ethical and theoretical aspects of digital imaging technology and current photographic practice. Application of these approaches, processes and concepts are discussed in terms of their relevance within and beyond art practices, including art as personal expression and as a professional field. Each assignment engages students critical thinking as they explore the artistic possibilities of digital photography while expanding their technological and aesthetic knowledge. During project critiques, students practice articulating their thought processes in relation to their own work and the work of their peers.
ART 306  Intermediate Design-Color  3 Credit Hours
The design emphasis will be on line and movement, positive/negative space, push/pull dynamics and a study of the nature of grids. The color emphasis will focus on tertiary colors, the effect of variations in color intensity and tonal contrast. There will also be a study of various twentieth century design movements such as the Russian Avant Garde, Constructivism and the Bauhaus, with some assignments modeled on these styles.
Prerequisite(s): ART 206
Restriction(s):
Can enroll if Level is Undergraduate

ART 320  Intermediate Digital Photo  3 Credit Hours
Full Title: Intermediate Digital Photography
Intermediate Digital Photography builds on skills learned in ART 220: Intro to Digital Photography. Students learn more advanced techniques and methods of problem solving in the field of digital photography. Through course assignments their technical skills of color management, correcting, and printing are developed. The course encourages students to synthesize history, concept, theory, and process, and to consider aesthetic elements in all assignments. Students are introduced to photographers who work digitally and also traditionally to study how various techniques can be employed as models. (F,W)
Prerequisite(s): ART 220

ART 321  Intermediate Painting  3 Credit Hours
Various painting approaches, styles and concepts are explored beyond the basic level through lectures and studio work. Students are encouraged to develop their own personal style as they master new techniques and types of subject matter. This course is repeatable once in order for students to develop their skills. When repeating, the content and assignments are determined in consultation with instructor.
Prerequisite(s): ART 201

ART 322  Intermediate Drawing  3 Credit Hours
The fundamentals of drawing are refined beyond the basic level in a variety of media through lectures and studio work. Students are encouraged to develop their own personal style as they master new techniques and types of subject matter. This course is repeatable once in order for students to develop their skills. When repeating, the content and assignments are determined in consultation with instructor.
Prerequisite(s): ART 202

ART 323  Figure Drawing  3 Credit Hours
This course is designed to teach each student about the complex human form through the act of observation, drawing, and memorization of specific anatomical terms. Emphasis will be on proportion, anatomy, composition, and expression. Students will draw from a live model.
Prerequisite(s): ART 202

ART 324  Intermediate Watercolor  3 Credit Hours
Various watercolor painting approaches, styles and concepts are explored beyond the basic level through lectures and studio work. Students are encouraged to develop their own personal style as they master new techniques and types of subject matter (still life, the figure, landscape and painting from the imagination). This course is repeatable once in order for students to develop their skills. When repeating, the content and assignments are determined in consultation with instructor.
Prerequisite(s): ART 204

ART 332  Creating the Graphic Novel  3 Credit Hours
This course focuses on the creation of an original graphic novel from inception to fully developed story. Students work on character, plot development, dialogue, drawing style, and layout planning, and are encouraged to introduce any cross-disciplinary techniques such as digital applications when appropriate. Lectures and readings consider contemporary media. This course is repeatable once in order for students to develop their skills. When repeating, the content and assignments are determined in consultation with instructor.
Prerequisite(s): ART 202 or ART 206
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

ART 360  Introduction to Printmaking  3 Credit Hours
This studio course is an introduction to the fundamentals of printmaking. The basic techniques of intaglio, lino-cut, chine chole, lithography and monotype printing methods are utilized in projects. As a deeply interdisciplinary practice, printmaking engages with other artistic media of drawing, painting, and collage. Each student is encouraged to incorporate other materials based on her/his major, interests or expertise.
Prerequisite(s): ART 201 or ART 202 or ART 204 or ART 206

ART 390  Topics in Applied Art  3 Credit Hours
Study of various media and techniques in selected areas of applied art. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when the topics differ.
Restriction(s):
Can enroll if Level is Undergraduate

ART 399  Independent Studies in App Art  1 to 3 Credit Hours
Study of various media and techniques in selected areas of applied art. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when the topics differ.
Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Art History (ARTH)

ARTH 101  Western Art to 1400  3 Credit Hours
An introduction to the history of art from the prehistoric era to the end of the middle ages. Using a broadly chronological structure, the course surveys changes in the style and substance of western (European) art in this period. The course also explores the connection between art and culture, and notes the many interrelationships between the cultures that have formed the western tradition. (F,W).

ARTH 102  Western Art from 1400  3 Credit Hours
A historical survey of western painting and sculpture from the Renaissance through the twentieth century. (F,W).

ARTH 103  Arts of Asia  3 Credit Hours
An introduction to the visual arts of three Asian civilizations: India, China, and Japan. Since this is a survey, the focus will be placed on major monuments that are characteristic of these artistic traditions. In order to better understand the works of art, the cultural milieu including religion, philosophy, and parallel arts will be considered. (YR).
ARTh 106  History of Western Architect  3 Credit Hours
From the eighth century, a new religious community with no developed artistic heritage spread rapidly over the ancient empires of the Near and Middle East and as far west as Spain and Hungary. Appropriating established forms and traditions, Muslim cultures created a brilliant system of religious and secular art that reveals national diversity and an underlying unity of purpose. This course provides an introduction to the visual traditions of Muslim cultures. (YR).

ARTh 105  Creation of Art  2 Credit Hours
An art appreciation course based on videotapes. Great art does not completely yield its secrets. The course helps the student to understand the subject, the message or content of the creation and the method that the artist used in making it. This course does not fulfill the Art History concentration requirement. (F,W).

ARTh 104  Arts of the Middle East  3 Credit Hours
From the eighth century, a new religious community with no developed artistic heritage spread rapidly over the ancient empires of the Near and middle east and as far west as Spain and Hungary. Appropriating established forms and traditions, Muslim cultures created a brilliant system of religious and secular art that reveals national diversity and an underlying unity of purpose. This course provides an introduction to the visual traditions of Muslim cultures. (YR).

ARTh 315  Early Chinese Art and Archaeol  3 Credit Hours
An examination of the art and architecture of early China (Neolithic through Eastern Han). Recent excavations that have significantly changed our view of the early period will be given emphasis. Students will analyze relevant literary and philosophical texts in translation to enhance understanding of the cultural context. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTh 319  Egyptian Art  3 Credit Hours
The art of the Ancient world is examined through an intensive review of the visual traditions of Egypt: its monumental architecture, sculpture, painting and decorative artifacts. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTh 321  Greek Art  3 Credit Hours
This course surveys the history and art of Crete, the Cyclades, and Greece from the third millennium through the first century B.C. In the prehistoric period, the course will focus on both architectural and ceramic developments, as well as on the trade and economic contacts between Asia Minor and Greece. In the historic period, the course considers the major artistic developments in architecture, sculpture, and painting, focusing on how social, political or historical events caused these art forms to evolve and change over the centuries. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTh 322  Roman Art  3 Credit Hours
This course surveys the major art forms produced by both the Romans and Etruscans. The course begins with the Roman Republic (late sixth century B.C.) and concludes with the rule of Constantine in the fourth century A.D.). We will discuss the development of the urban, government complex (the Roman Forum), the evolution of domestic architecture, and the major artistic achievements in sculpture, painting, and the minor arts. We will focus on how social, economic, religious, political and/or historical events caused these art forms to evolve and change over the centuries. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTh 327  Myth & Ritual in Classical Art  3 Credit Hours
Polytheistic, multicultural religious practices shaped Greek and Roman culture and society. This course examines the main deities, myths, rituals and sanctuaries of the ancient Mediterranean through the study of art, architecture, texts and archaeology. Freestanding sculptures, relief sculptures, vase paintings, wall paintings, mosaics, coinage, altars and temples will be analyzed.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105

ARTh 331  Early Christian Byzant Art  3 Credit Hours
Borrowing its formal language from late antiquity and its symbolism from other mystery cults, the art of early Christianity emerged from the Roman catacombs to monumental expression under emperors Constantine and Justinian. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106
ARTH 332  Early Med and Romanesque Art  3 Credit Hours
A study of the dynamic interplay between barbarian, Christian and
classical Mediterranean influences in the early Medieval period with
a consideration of the art and architecture of the pilgrimage routes to
Santiago de Compostela and of the crusader kingdoms in the Holy Land. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 333  Gothic Art and Architecture  3 Credit Hours
A survey of the architecture, sculpture and stained glass of the great
cathedrals of Europe, focusing on Chartres, Amiens, Reims, and Bourges.
A study of the patrons, builders, the new technology they employed and
the cities in which they worked as well as an analysis of the emergence of
naturalism in medieval manuscript illumination and panel painting. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 334  The 14th Century  3 Credit Hours
This is a course that examines the art and architecture of Europe in the
14th century: one of the great transitional periods in the history of
western art. Beginning with the new developments in 13th-century Italian
art by such artists as Giovanni Pisano and Giotto, the course charts the
pattern of these developments in northern European countries as well.
(OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 335  Women in Medieval Art  3 Credit Hours
Women have often been regarded as the second sex of the middle
ages due to the misogynistic attitudes of that era. Recent scholarship,
however, has unearthed a significantly more complex picture. Through
a study of visual representations of women in medieval art, this course
will examine women's roles in the creation and patronage of art and
literature, economic and family issues, and women's participation in new
and innovative forms of religious piety.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106 or WGST 275 or WGST 303 or HUM 275 or HUM 303 or PSYC
275 or PSYC 303 or ANTH 275 or ANTH 303 or SOC 275 or SOC 303 or
WST 275

ARTH 341  Art&Arch in Early Ren Florence  3 Credit Hours
This course examines the city of Florence as a work of art, as well as
masterpieces of Florentine sculpture, painting and architecture of the
Early Renaissance (fifteenth century). Among the masters studied are the
sculptors Nanni di Banco, Donatello, Ghiberti, Luca della Robbia,
Pollauiolo, and Verrocchio; the painters Masaccio, Fra Angelico, Fra
Filippo Lippi, and Botticelli; and the architects Brunelleschi, and Alberti.
Statuary, reliefs and tombs; altarpieces, fresco cycles and mythological
pictures; churches and palaces are all studied within the context of the
technical, philosophical, political and cultural developments of the
quattrocento. The ideals of the Florentine Republic, Humanism, Neo-
Platonism, and Manierism provide the historical and intellectual
background for the study of these works of art and architecture. Issues of
patronage, placement, restoration, art criticism, women's roles in society
and reception will also be explored. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103

ARTH 342  High Renaissance and Mannerism  3 Credit Hours
A study of the works of Leonardo, Michelangelo and Raphael, masters of
the High Renaissance in Florence and Rome, and an examination of the
Mannerists, a new generation whose art displayed a modern accent on
self-expression and abstraction. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 343  Northern Renaissance Art  3 Credit Hours
A survey of the art which arose amid the conflicts of late medieval
mysticism and Renaissance humanism in 15th- and 16th-century
Germany and the Netherlands with emphasis on the works of Van Eyck,
Durer, Grunewald, Bosch, and Bruegel. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 344  Italian Renaissance Sculpture  3 Credit Hours
A study of freestanding and relief sculpture during the Italian
Renaissance, with particular attention to major artistic centers like
Florence, Rome, and Venice in the 15th and 16th centuries. By examining
such forms as colossal statuary, equestrian sculpture, tomb monuments,
garden sculpture, and portrait busts, the course will address the function
of art within the public sphere, the relationship between civic sculpture
and political ideology, the re-elevation of sculpture from a mechanical art
to a liberal art, and the role artistic individuality and technical proficiency.
Artists addressed will include Donatello, Ghiberti, Verrocchio, Antico,
Riccio, Bertoldo, Michelangelo, Cellini, and Giambologna.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 351  Southern Baroque Art  3 Credit Hours
A study of the art of the seventeenth century in Italy and Spain, focusing
upon Caravaggio, Annibale Carracci, Guercino, Reni, Cortona, Gaulli,
Murillo, Zurbaran, and Velasquez, among others. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 352  Northern Baroque Art  3 Credit Hours
Study of the art of the seventeenth century in France, Flanders and
Holland, with emphasis on Poussin, Georges de la Tour, The Le Nain
brothers, Lebrun, Rubens, Van Dyck, Van Ruisdael, Vermeer, and
Rembrandt. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 360  Art of Glass  3 Credit Hours
This course focuses on glass as a medium and an art form. From Roman
times to the present day, the unique qualities of glass have excited
artists and craftsmen to make vessels, sculptures, and architectural
ornamentation. The course traces the form and function of glassworks,
focusing particularly on the historical trajectory of glass from ancient
vessels and medieval stained glass, to the development of "art glass" in
the nineteenth century, to contemporary objects. The course is based
on lectures, discussion, and readings. Students are required to attend
several field trips for "hands-on" work with objects. Enrollment is limited
to 15 students.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 361  American Art  3 Credit Hours
A study of American painting, sculpture, and architecture from the
colonial period to the present. In this survey of an arts tradition that has
greatly depended upon developments in Europe, efforts will be made to
identify what is American about American art. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTH 362  Impressionism and Post-Impress  3 Credit Hours
An examination of the origins of modern painting and sculpture in the
art of the major Impressionists (Manet, Monet, Degas, Renoir) and Post-
Impressionists (Cezanne, Seurat, Gauguin, Van Gogh). (OC).
ARTH 363  Arts of the Twentieth Century  3 Credit Hours
A contextual study of twentieth-century art that seeks to define the relationships between western art and society. In addition to a consideration of painting, sculpture, and architecture, the emergence of new media - including altered and fabricated photography, video, and installation art - will be examined. Although a broad survey of a century rich in artistic achievements, the course will emphasize the dominance and influence of Pablo Picasso, Henri Matisse, and Frank Lloyd Wright. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 364  Picasso  3 Credit Hours
A critical examination of Pablo Picasso's art that chronicles the artist's achievements as a painter, sculptor, draftsman, printmaker, and ceramist. Lectures and readings are directed to positioning Picasso's masterworks in relationship to his art as a whole and in the context of twentieth-century art. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 365  Modern Architecture  3 Credit Hours
A survey of European and American architecture from the Chicago School to Post-Modernism. The course will trace the stylistic history of modern architecture while considering parallel issues of theory, social context, and building technology. Major architects studied will be Sullivan, Wright, Mies van der Rohe, Le Corbusier, and Johnson. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 366  The Modern Print  3 Credit Hours
A history of western printmaking from Post-Impressionism to the present. The course will examine the relationship of printmaking to major movements of the day, the impact of modern technology on traditional print processes, and the developing notion of printmaking as an integral form of expression for the modern painter and sculptor. Special emphasis will be placed on the contributions of Gauguin, Munch, Picasso, Johns, and Stella. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 367  Contemporary Art  3 Credit Hours
An examination of the most recent developments in modern art. In addition to painting and sculpture, consideration will be given to related forms of expression in performance art, photography, and video. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 368  American Photography  3 Credit Hours
This course explores the history of photography, its aesthetics, and social functions in the United States, beginning with the medium's emergence in the 1830s and concluding with contemporary practices. Lectures and discussions will attend to several threads of inquiry: the history and theory of the medium and its interpretation, the diverse functions of photographs in American society, the relationship between photography and American identity formation; and the status of the photograph in a post-photographic, digital age.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 375  Urban Design Perspectives  3 Credit Hours
This course explores the ways in which urban design both creates and reflects past and present urban conditions, cultures, and spatial relationships. The course will look at the built environment architecturally, aesthetically, and anthropologically in order to highlight the ever changing complexities of urban spheres. The placement and design of buildings and public spaces, and the resulting human interactions in those spaces, will be explored in comparative contexts.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

ARTH 384  Islamic Architecture  3 Credit Hours
This course is a comprehensive study of history and development of Islamic architecture from its birth in the seventh century to the present time. The course is designed to explain major characteristics of Islamic architecture through the study and analysis of major monumental buildings both religious and secular: Mosques, Madrasas (schools), Mausoleums, Palaces, and other buildings. Detailed analysis also will be applied to different types of art associated with these buildings, such as wall painting, stucco work, wood carving, sculpture, mosaic, and calligraphy.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105
Restriction(s):
Can enroll if Level is Undergraduate

ARTH 385  Islamic Decorative Arts  3 Credit Hours
This course is an in-depth investigation of the decorative arts of the Islamic Middle East from the seventh through the eighteenth century including the lands of Islamic Spain and North Africa and extending east to Afghanistan. The course traces the development of decorative styles in objects of daily and courtly life, particularly ceramics, metal work, glass, wood and ivory carving, textiles and rugs. The central role played by calligraphy in all of the arts is emphasized as well as in manuscript production and the Arts of the Book. As a religion, but also a way of life, Islam fostered a distinctive artistic production reflected in these decorative arts.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106 or RELS 201

ARTH 390  Topics in Art History  3 Credit Hours
Examination of problems and issues in selected areas of art history. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when topics differ. (OC).

ARTH 399  Independent Studies  1 to 3 Credit Hours
Readings and research assignments in history of art selected in accordance with the special needs and interests of art history concentrators. May be repeated for a maximum of 6 credit hours. (F,W).
Universiity of Michigan-Dearborn 277

ARTh 400  Senior Seminar  3 Credit Hours
An introduction to art-historical research methods. The art historian's central
task of interpretation is explored by considering the critical
perspectives of connoisseurship, iconography, formal analysis, iconology,
and modern literary theory. (OC).
Prerequisite(s): (ARTH 304 or ARTH 305 or ARTH 310 or ARTH 311
or ARTH 312 or ARTH 313 or ARTH 315 or ARTH 319 or ARTH 321
or ARTH 322 or ARTH 331 or ARTH 332 or ARTH 333 or ARTH 334
or ARTH 342 or ARTH 343 or ARTH 346 or ARTH 351 or ARTH 352
or ARTH 361 or ARTH 362 or ARTH 363 or ARTH 364 or ARTH 365
or ARTH 366 or ARTH 367 or ARTH 370 or ARTH 390 or ARTH 392
or ARTH 410 or ARTH 411 or ARTH 425 or ARTH 416 or ARTH 454)
or ARTH 426 and (ARTH 304 or ARTH 305 or ARTH 310 or ARTH 311
or ARTH 312 or ARTH 313 or ARTH 315 or ARTH 319 or ARTH 321
or ARTH 322 or ARTH 331 or ARTH 332 or ARTH 333 or ARTH 334
or ARTH 342 or ARTH 343 or ARTH 346 or ARTH 351 or ARTH 352
or ARTH 361 or ARTH 362 or ARTH 363 or ARTH 364 or ARTH 365
or ARTH 366 or ARTH 367 or ARTH 370 or ARTH 390 or ARTH 392
or ARTH 410 or ARTH 411 or ARTH 425 or ARTH 426 or ARTH 454)

ARTh 410  Museum Practice Seminar I  3 Credit Hours
Students conduct research on works of art in preparation for an
exhibition and an accompanying catalogue. Students are exposed to all
aspects of writing a catalogue and didactic texts, designing/installing the
exhibition, and planning the exhibition opening.
Prerequisite(s): (ARTH 304 or ARTH 305 or ARTH 310 or ARTH 311
or ARTH 312 or ARTH 313 or ARTH 315 or ARTH 319 or ARTH 321
or ARTH 322 or ARTH 331 or ARTH 332 or ARTH 333 or ARTH 334
or ARTH 342 or ARTH 343 or ARTH 346 or ARTH 351 or ARTH 352
or ARTH 361 or ARTH 362 or ARTH 363 or ARTH 364 or ARTH 365
or ARTH 366 or ARTH 367 or ARTH 370 or ARTH 390 or ARTH 392
or ARTH 400 or ARTH 411 or ARTH 425) and (ARTH 304 or ARTH 305
or ARTH 310 or ARTH 311 or ARTH 312 or ARTH 313 or ARTH 315
or ARTH 319 or ARTH 321 or ARTH 322 or ARTH 331 or ARTH 332
or ARTH 333 or ARTH 334 or ARTH 342 or ARTH 343 or ARTH 346
or ARTH 351 or ARTH 352 or ARTH 361 or ARTH 362 or ARTH 363 or
ARTH 364 or ARTH 365 or ARTH 366 or ARTH 367 or ARTH 370 or
ARTH 390 or ARTH 392 or ARTH 400 or ARTH 411 or ARTH 425)

ARTh 411  Museum Practice Seminar II  3 Credit Hours
This course is an introduction to museum studies. Students explore the
history and missions of museums, and the role of museums in
shaping public discourses on art. They also study current issues related to
museum practice, including collection development, repatriation of
cultural property, conservation, administration, research, exhibition and
interpretation. Field trips to area institutions are scheduled so students
can meet museum and gallery professionals in order to consider career
opportunities available in this context.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106

ARTh 416  Earl Mod Jpn Paint&Wood Pmts  3 Credit Hours
Paintings and woodblock prints of the Edo/Tokugawa (1600-1868)
and Meiji (1868-1912) periods are considered in light of competing
developments that on the one hand looked to Japan's classical tradition and
on the other to the influence of art and artists from China and the
West. Special attention is given to female artists and images of women.
Students cannot receive credit for both ARTH 416 and ARTH 516. (OC).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103
Restriction(s):
Cannot enroll if Class is Graduate

ARTh 425  Women in Classical Antiquity  3 Credit Hours
This course examines the evidence for the lives of women in Greek,
Etruscan and Roman Antiquity, from the Bronze Age through the
Imperial Period. Special emphasis will be placed on the archaeological
evidence, especially works of art which illustrate women's lives and their
relationships with men. Documents such as dedicatory and funerary
inscriptions, the poetry of Sappho and Sulpicia, and selections from the
writings of Homer, Hesiod, Aristotle, Pliny, Juvenal, and other ancient
authors, will also be examined critically, particularly in relationship to
the works of art. Students cannot receive credit for both ARTH 425 and
ARTH 525. (YR).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106
Restriction(s):
Cannot enroll if Class is Graduate

ARTh 426  City of Ancient Rome  3 Credit Hours
This course will focus on the ancient city of Rome, from its foundation to
its precipitous decline in the fifth century AD. It will explore the public art
and architecture of the city, emphasizing the different types of evidence
available (topography, architecture, sculpture, texts) for understanding the
history, politics, religion, and urban development of Rome, as well as the
various art historical and archaeological techniques used to analyze the
evidence. (OC)
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103

ARTh 427  Greek Architecture  3 Credit Hours
The architectural vocabulary established during the centuries of classical
Greek civilization influences our culture to the present day. This course
explores the history and development of this fundamental architectural
tradition, focusing on the Greek temple, sanctuaries and holy sites,
urban planning and public works, and domestic space. Students discuss the
philosophical underpinnings of Greek architectural design, the
engineering practices of Greek builders, as well as the cultural and social
influences on Greek buildings and cities. This course begins with the
emergence of humble mudbrick and timber buildings from the Dark Ages
and continues through the height of cosmopolitan urban luxury in the 2nd
century AD.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106
Restriction(s):
Can enroll if Level is Undergraduate

ARTh 428  Roman Art and Memory  3 Credit Hours
In this course, we examine Roman art closely associated with personal
commemoration and cultural memory, including portraiture, funerary
monuments, imperial monuments, and public architecture. We explore these objects' relationship to Roman literary culture?5 theories of
mnmotrichs, and in the social context of the Roman obsession with
memory perpetuation. We also examine how art historians apply modern
theories of collective and social memory in their scholarship on Roman
art, creating new ways of understanding Roman sculpture, painting, and
architecture. Finally, we investigate Roman spectacle and performance as a vehicle of cultural memory. Students cannot earn credit for both
ARTH 428 and ARTH/LIBS 528.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or
ARTH 106
Restriction(s):
Can enroll if Level is Undergraduate
Astronomy (ASTR)

ASTR 130  Introduction to Astronomy  3 Credit Hours
A one-term introduction for those interested in learning about the present state of knowledge of the Universe, its origin, evolution, organization, and ultimate fate. Exciting new discoveries concerning extrasolar planets, star birth, supermassive black holes, dark matter/dark energy, and cosmology are discussed. Two years of high school math or its equivalent recommended.

ASTR 313  Introductory Astronomy Lab  1 Credit Hour
An introduction to some of the important observational techniques and analytical methods used by astronomers. Ground-based and satellite data will be used to reveal physical and chemical properties of the moon, planets, stars, and the Milky Way. Outdoor exercises involving telescopic observation of the sun, variable stars, nebulae, and external galaxies are also included. Constellation identification will be taught using off-campus planetarium facilities.

Prerequisite(s): ASTR 130* or PHYS 130

ASTR 133  Search for Life in the Universe  3 Credit Hours
Full Title: The Search for Life in the Universe A one-semester course on the scientific search for life throughout the Universe. The range of environments hospitable for life form an organizing principle by which to examine several aspects of modern Astronomy including, but not limited to: habitats in the Solar System; physical constraints on life and unusual chemistry; the Search for Extraterrestrial Intelligence and the Fermi Paradox. (F)

ASTR 301  Astrophysical Concepts  3 Credit Hours
A one-semester course introducing the Physical concepts used in Modern Astrophysics, with an emphasis on the application of these ideas to Astrophysical objects. The course familiarizes the student with the Astronomical concepts and vocabulary used in other Astronomy courses at the 300-level and beyond. The course begins with an overview of Astronomical objects and terminology, before introducing conservation laws in Physics and their applications in Astronomy. Newtonian mechanics and gravity are then introduced and applied to various self-gravitating systems and scenarios. Electromagnetism, Quantum mechanics and gravity are then introduced and applied to various self-gravitating systems and scenarios. Electromagnetism, Quantum Mechanics and a small amount of Statistical Physics are covered at sufficient detail to understand the behavior of electromagnetic radiation and thermal emission. Special and General Relativity are introduced from the point of view of understanding the behaviors of certain exotic objects in Astronomy. Common statistical distributions used in upper-level Astronomy courses are also introduced with an emphasis on application.

Prerequisite(s): (MATH 114 or MATH 116) and (PHYS 126 or PHYS 151)

Restriction(s):
Can enroll if Level is Graduate or Undergraduate
Can enroll if College is Business or Education, Health, and Human Services or Arts, Sciences, and Letters or Engineering and Computer Science

ASTR 330  The Cosmic Distance Scale  3 Credit Hours
An exploration of the cosmic distance ladder focusing on the systems and techniques that astronomers use in establishing the distances to celestial objects. Direct measures using radar ranging and trigonometric parallax will be discussed for objects in the solar system and for stars within about 3000 light-years of the Sun, respectively. For more remote systems in or just outside the Milky Way, methods based spectroscopic parallax and the period-luminosity relation for various types of variable stars will be introduced. For the extra-galactic objects, use of the Hubble relation and the light curves of Type Ia supernovae will be made to assess the distances. At each rung of the ladder, emphasis will be placed on the astrophysical principles and processes underlying the methodology being applied. 3 hours lecture

Prerequisite(s): (MATH 113 or MATH 115) and (PHYS 126 or PHYS 151)
ASTR 361  Observational Techniques  3 Credit Hours
This course is designed to provide students with an understanding of some of the basic observational techniques used by astronomers in gathering and analyzing data from celestial objects. Practical experience in acquiring, displaying, and interpreting optical and radio observations using the University's 0.4-m telescope and 2.3-m radio dish will be emphasized. Topics will include astronomical coordinate system and timekeeping, telescope optics, the design and use of CCD detectors, fundamentals of multi-color photometry, an introduction to astronomical spectroscopy, and radio measurements of the Sun and interstellar hydrogen clouds at 21-cm wavelengths. (2 hours lecture, 3 hours laboratory)
Prerequisite(s): (ASTR 130 or PHYS 130) and (PHYS 126 or PHYS 151)

ASTR 390  Topics in Astronomy  3 Credit Hours
A lecture in a topic of current interest in astronomy. Topics vary and are announced in the current Schedule of Classes. Three hours lecture.
Prerequisite(s): ASTR 130 or PHYS 130

ASTR 390A  Topics in Astronomy  3 Credit Hours
Topic: Dark Matter, Dark Energy, Dark Future? An Introduction to 21st Century Cosmology. Modern cosmology, buttressed by increasingly precise observational data provided by space missions like HST, COBE, and WMAP, teaches that the universe is composed primarily of matter we cannot see nor properly characterize, the so-called 'dark matter,' and of energy whose source is unknown and may defy knowing, the ubiquitous 'dark energy.' This course will attempt to elucidate what we currently understand about the composition, structure and evolution of the universe based on general relativistic theory and astronomical observations of remote galaxies using both ground- and space-based technologies. Special attention will be given to the means by which important cosmological parameters that determine the structure of the universe, like the critical density, the Hubble parameter, and the curvature and cosmological constants, are established. If time permits, additional consideration will be given to the array of planned future space missions devoted to cosmology-related subjects.
Prerequisite(s): PHYS 305

ASTR 421  Stellar Astrophysics  3 Credit Hours
An application of important physical principles to stars and star clusters. Topics will include gravitational collapse and star formation, radiative transfer and stellar atmospheres, nucleosynthesis and the structure of normal stars, degeneracy and the endpoints of stellar evolution, and general relativistic effects in the vicinity of black holes. 3 hour lecture.
Prerequisite(s): (PHYS 305 or ASTR 301 and (MATH 205 or ASTR 330) or MATH 215)

ASTR 445  Galaxies and Cosmology  3 Credit Hours
A course devoted to our current understanding of the composition, structure, and evolution of the universe based on general relativistic theory and astronomical observations of remote galaxies using both ground- and space-based technologies. Topics include observational characteristics, classification, kinematics and evolution of galaxies, quasars and active galactic nuclei, the cosmic microwave background radiation, concepts of general relativity, single- and multi-component models of the universe, dark matter and dark energy, and the origin of the universe (the big bang, inflation and the creation of the first elements). Three hourse lecture. (AY)
Prerequisite(s): (PHYS 305 or ASTR 301 or ASTR 330) and (MATH 114 or MATH 116)

ASTR 499  Research in Astronomy  1 to 3 Credit Hours
Observational/experimental studies in astronomy selected by agreement between the student and the instructor. Four to twelve hours laboratory/ independent study. May be repeated for credit. (F, W, S)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Behavioral and Biological Sciences (BBS)

BBS 451  Ethics in Research  1 Credit Hour
This course provides an opportunity for students to explore and evaluate the ethical standing of different forms of research from a variety of perspectives. From a historical perspective, students will learn why federal legal protections are in place for use of human participants and animal subjects, and how this applies to their own research and future aspirations in research. This course will provide a discussion and readings relevant to understanding the foundation of current ethical responsibilities from which students will be able to apply the requirements and policies in conducting research projects with human participants and animal subjects. (YR)
Prerequisite(s): BIOL 140 and PSYC 101 or PSYC 171
Restriction(s): Cannot enroll if Class is Freshman or Sophomore

BBS 490  Bio and Beh Science Capstone  3 Credit Hours
This capstone provides an opportunity for students to combine knowledge and skills from their undergraduate courses to address an interdisciplinary topic in the field of Biological Psychology (Behavioral and Biological Sciences) through their own research projects. The course includes research, writing and extended discussion culminating in a final project. (YR)
Prerequisite(s): (BIOL 370 or CHEM 370 or BCHM 370 or BIOL 470 or CHEM 470 or BBS 470 or BIOL 301 or BIOL 306 or BIOL 474) and (PSYC 370 or BBS 357) and (PSYC 381 or STAT 301)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Biochemistry (BCHM)

BCHM 352  Introduction to Toxicology  3 Credit Hours
An introduction to the principles of toxicology with an emphasis on environmental toxicology. Major topics include toxic agents, toxicological mechanisms, and use of toxicological reference literature. Discussion of chemical carcinogenesis, genetic toxicology, immunotoxicology, teratology, and toxic responses of the skin, eyes, and nervous system. Three hours lecture. (AY).
Prerequisite(s): CHEM 225
BCHM 370 Principles of Biochemistry  3 Credit Hours
A concise but comprehensive survey of various areas of biochemistry designed for non-biochemistry majors. The course follows the standard approach to the subject including a description of cells, their structure and constituent macromolecules (proteins, nucleic acids, carbohydrates and lipids), enzymology, bioenergetics, intermediary metabolism, and gene regulation. Students cannot take both Biochemistry 370 and 470 or 471 for any combination of concentration, cognate or minor requirement. Three hours lecture. (F).
Prerequisite(s): BIOL 140 and CHEM 226

BCHM 390 Current Topics in Biochemistry  1 to 3 Credit Hours
Special topics current to the field of biochemistry. Topics and format for the course may vary. See Schedule of Classes for current topic. Permission of instructor. (OC).
Prerequisite(s): (BCHM 370* or BIOL 370* or CHEM 370*) or (BCHM 470* or BIOL 470* or CHEM 470*)

BCHM 404 Mech. Chronic Human Disease  3 Credit Hours
This course focuses on the biochemical, molecular and cellular mechanisms underlying the progression of chronic diseases, such as diabetes mellitus and atherosclerosis. Techniques in epidemiology, pathology, genetics, molecular biology, and biochemistry are used to understand how relevant physiological processes become pathological. The examination of chronic diseases provides an opportunity to understand biological processes across many scales of life, from extracellular matrix proteins to cells in blood vessel walls to risk factors in patient populations to the pharmacology of treatments. Use of primary literature is emphasized. Three hour lecture.
Prerequisite(s): BIOL 301 or BIOL 306 or BIOL 357 or BCHM 370 or BIOL 370 or CHEM 370 or BCHM 471 or BIOL 471 or CHEM 471
Restriction(s):
Can enroll if Class is Junior or Senior

BCHM 430 Bioinorganic Chemistry  3 Credit Hours
This course examines the roles that metals play in biological systems, including the chemical principles that make metal ions well-suited for roles in protein structure, in redox catalysis and in acid base chemistry. The physical and experimental techniques that are applied to explore the structure and function of metals systems will be introduced using case studies from the primary scientific literature in the field. BCHM 370 or its equivalent are strongly recommended but not required.
Prerequisite(s): CHEM 136 and BIOL 140

BCHM 470 Biochemistry I  3 Credit Hours
Life processes from a chemical viewpoint: structure/function relationships of biomolecules with emphasis on proteins, enzyme kinetics, and mechanisms of action. Three hours lecture. (F).
Prerequisite(s): BIOL 130 and BIOL 140 and CHEM 226

BCHM 471 Biochemistry II  3 Credit Hours
Intermediary metabolism, bioenergetics, energy transformation, metabolic interrelationships, biochemical regulation, highly structured subcellular biochemical systems. Three hours lecture. (W).
Prerequisite(s): BCHM 470 or CHEM 470 or BIOL 470

BCHM 472 Biochemistry Laboratory I  1 Credit Hour
The techniques of preparative and analytical biochemistry. Preparation and characterization of proteins and nucleic acids. Physical and chemical properties of proteins and nucleic acids. Four hours laboratory. CHEM 344 Recommended. (F).
Prerequisite(s): (BCHM 470* or BIOL 470* or CHEM 470*) and CHEM 227

BCHM 473 Biochemistry Laboratory II  1 Credit Hour
The techniques of preparative and analytical biochemistry. Preparation and characterization of lipids and carbohydrates. Methods in metabolism. Four hours laboratory. (W).
Prerequisite(s): (BCHM 471* or BIOL 471* or CHEM 471*) and (BCHM 472* or BIOL 472* or CHEM 472*)
Corequisite(s):
BCHM 474 Molecular Biology  4 Credit Hours
This course will emphasize the molecular biology of eukaryotes, and topics will include genome organization and complexity, chromatin structure and function, gene expression, DNA replication and repair, genetic rearrangements, and the molecular biology of development. The laboratory will emphasize the application of recombinant DNA technology to the study of biological problems. Three hours lecture, four hours laboratory. (W).
Prerequisite(s): (BCHM 470 or CHEM 470 or BIOL 470) or (BCHM 370 or BIOL 370 or CHEM 370) and CHEM 227
Corequisite(s): BCHM 474L

BCHM 478 Biochemical Pharmacology  3 Credit Hours
Pharmacology is a study of drugs. In this course, the biochemical and molecular basis of drug action will be emphasized. Different categories of drugs, their use, abuse, and side effects will be presented. Three hours lecture. Permission of instructor. (OC).
Prerequisite(s): CHEM 370 or BCHM 370 or BIOL 370 or BCHM 470 or CHEM 470 or BIOL 470

BCHM 490 Topics in Biochemistry  1 to 3 Credit Hours
A course in special topics that examines research problems of current interest in biochemistry. Topics and format may vary. See current Schedule of Classes. One to three hours seminar. (W).

BCHM 495 Off-Campus Research in Biochem  1 to 3 Credit Hours
Participation in ongoing research at an off-campus laboratory. No more than 6 hours combined from any Natural Science courses numbered 495, 498, and 499 may be credited toward the 120 hours required for a degree. Four to twelve hours laboratory. Permission of concentration advisor. (F,W,S).

BCHM 496 Complex Systems  3 Credit Hours
Full Title: Biochemistry Capstone: Complex systems in Biochemistry
A complex system is defined as a system featuring a large number of interacting variables whose combined activity is non-linear and whose seemingly random behavior leads to self-organization. Current topics ** are used to explore how complex systems function in biology. All reading material in the class are taken from the scientific literature giving students a chance to become familiar with how biochemists convey ideas and report their findings. Each student will present a paper to the class to demonstrate the ability to communicate concepts of Biochemistry effectively. Students will also learn the process of proposal writing and will have the opportunity to research and write their own proposal and have it peer-reviewed by their classmates. **The topics for this course will change each year, depending on the instructor, and the focus of current advances in Biochemistry/Complex systems. (W,YR)
Prerequisite(s): BCHM 470 and BCHM 472 and BCHM 474
Restriction(s):
Can enroll if Class is Senior
BCHM 497  Seminar in Biochemistry  1 Credit Hour
A seminar course that examines research problems of current interest in biochemistry. The course format may include training students to read and present scientific papers, guest lecturers, and lectures by the instructor on a selected topic. One hour seminar. Permission of instructor. (W).
Prerequisite(s): (BCHM 470 or BIOL 470 or CHEM 470) and (BCHM 474 or BIOL 474)

BCHM 498  Directed Reading in Biochem  1 to 3 Credit Hours
Library research in a specific area of biochemistry performed under the direction of a faculty member. No more than six hours combined from departmental courses numbered 495, 498, and 499 may be credited toward the 120 hours required for a degree. Four to twelve hours readings. Permission of instructor. (F,W,S).

BCHM 499  Laboratory Research in Biochem  1 to 3 Credit Hours
Directed laboratory research performed under the supervision of a faculty member. Research training is encouraged. No more than six hours combined from departmental courses numbered 495, 498, and 499 may be credited toward the 120 hours required for graduation. Four to twelve hours laboratory. Permission of instructor. (F,W,S).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Bioengineering (BENG)

BENG 325  Thermofluid for Bioengineering  4 Credit Hours
This course is an introduction into mass and heat transport phenomena in biomedical systems. Basic mechanisms of fluid flow, heat transfer, and diffusion are presented and applied to biological objects (cells, tissues, organisms) and biomedical devices. Topics include mass, momentum, and energy conservation laws, physical properties of common and biological fluids, elements of fluid statics, control volume analysis, basics of fluid mechanics, conduction and convection heat transfer, diffusion, applications to hyper- and hypothermia, thermal ablation, and cryopreservation, basics of mass and heat transfer in the body.
Prerequisite(s): ENGR 216 and ME 230 and (ME 265 or ME 345)
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science

BENG 351  Bio-Sensors & Instrumentation  4 Credit Hours
The course covers measurements in biological materials using a variety of sensor technologies along with electronic instrumentation design and use. Safety and FDA requirements are also presented.
Prerequisite(s): ECE 305 and (ENGR 216 or ECE 270) and MATH 216 and BIOL 103 and BIOL 140
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 364  Prob&Stat in Bioengineering  3 Credit Hours
Set theory, combinatorial analysis, probability and axioms, random variables, continuous and discrete distribution functions, expectations, Chebyshev's inequality, weak law of large numbers, central limit theorem, sampling statistics and distributions, point and interval estimation, and linear regression.
Prerequisite(s): MATH 116 or MATH 114 or MPLS with a score of 215
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science

BENG 370  Biomechanics I  4 Credit Hours
The course provides a basic understanding of how the human body functions as a mechanical system. Review of mechanics. Musculoskeletal anatomy, statics and kinematics, muscle force redundancy, joint mechanics. Bone and soft tissue mechanics, muscle active force generation. Implant stress shielding and impact safety. Laboratory experiments directed at rehabilitation engineering, biological bone and tissue property measurement, bone and implant structural analysis, and impact safety.
Prerequisite(s): (ME 265 or ME 345) and MATH 216
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 375  Biomaterial Tissue Engrg  4 Credit Hours
The course provides a basic understanding of the structure, properties and therapeutic applications of biomaterials, as well as the opportunities and scientific and technological challenges of tissue engineering. It also provides an integrated and multidisciplinary biological-engineering approach and probes mechanisms and methods of evaluation of tissue/biomaterials and patient/device interactions. Further the course assesses current outcomes, current challenges and cutting edge technological solutions to medical problems. Laboratory topics include key biological concepts, clinical safety, tissue culture, biological cells/bioactive materials interaction, and scaffold testing.
Prerequisite(s): ENGR 250 and BIOL 140
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Level is Undergraduate

BENG 381  Bioprocessing  4 Credit Hours
This course will introduce the students to the field of bioprocessing where the engineering concepts are applied to convert raw materials to pharmaceuticals, chemicals and food using biological processes. Discussions will include application of bioprocess-engineering knowledge in designing, building, controlling, and operating the biologically driven processes. Typical applications include bioreactor design, material collection and scale-up considerations. The course will also introduce the pharmacokinetics and pharmacodynamics analysis concepts to the students and will serve as an introductory course to teach how to use these concepts to design bioprocess-engineering systems. 4 credit hours (3 credit hours of lecture and 1 credit hour of lab).
Prerequisite(s): (ME 325 or BENG 325) and BIOL 140 and CHEM 136
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters
BENG 410  Bioinformatics  3 Credit Hours
This course covers fundamental computer skills for using various bioinformatics tools, querying bioinformatics databases, computational approaches and analysis methods for biological problems, and introduction to various programming languages and toolboxes for bioinformatics, data mining, and data visualization.
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 425  Transport in Biosystems  3 Credit Hours
The course introduces transport phenomena in biological and medical systems to students already familiar with basic thermal-fluid sciences. Topics include properties of body fluids and cell membranes, blood flow and solute and oxygen transport in biological systems, basic principles of pharmacokinetic analysis, transport phenomena in medical devices and artificial organs.
Prerequisite(s): ME 375 or BENG 325
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 426  Fundamentals of Drug Delivery  3 Credit Hours
This course is designed to provide students with an understanding on the concepts in drug delivery from an engineering perspective. The course will cover drug delivery mechanisms, quantitative understanding of drug transport, nanotechnology, drug delivery devices, toxicity and immune response, FDA regulations, clinical trials and technology transfer. The course will conclude with a design project on nanoparticles development for targeted drug delivery. (F)
Prerequisite(s): BENG 325 and BIOL 140
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 451  Microfluidics  3 Credit Hours
Microscaled systems and devices have enhanced reaction rates, predictable fluidic mechanisms, reduced reagent volumes, and also lowered cost of manufacturing. These advantages benefit many biomedical applications that require sensitive molecular detection in robust and economical devices. In this course, a range of microsystem techniques will be discussed, including those based on Microfluidics, BioMEMS, and OptoFluidics. The lectures will meet twice a week, one hour each, and will be accompanied by student-driven design projects that will be conducted in 3-hour laboratories.
Prerequisite(s): (BENG 325 or ME 325) and (BENG 375 or BENG 381)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 460  Nanobiosystems Engineering  3 Credit Hours
Nanobiosystems Engineering is an emerging frontier in nanotechnology. It integrates materials science, bioengineering, physics and life science with the biological and biochemical applications. This fast-developing interdisciplinary field holds the promise to solve many of the medical problems of future. The course will introduce advanced concepts related to nanomaterials and nanofabrication and their application in medicine. The course will also focus on design and development of nano-devices for the applications of pharmaceuticals and healthcare. Typical applications include nano-biosensor, targeted drug delivery, and tissue engineering will also be discussed. Students in Bioengineering will have a chance to present and discuss individual application through team project.
Prerequisite(s): (ME 325 or BENG 325) or (ME 349 or BENG 351 and BENG 375)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 4671  Senior Design  4 Credit Hours
A guided design project course where student teams propose design projects, design a device, system or process related to bioengineering and conduct evaluative experiments and/or construct a physical prototype. Engineering ethics and responsibility. At the end of the semester, the students are required to submit written reports and give oral presentations with a demonstration of their projects
Prerequisite(s): BENG 325 and BENG 351 and BENG 370 and (BENG 375 or BENG 381) and BENG 364
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Bioengineering

BENG 470  Biomechanics II  3 Credit Hours
The course covers intermediate level subject matter on structural biomechanics. Topics include bone structure modeling, implant and fixation materials, analysis and design, ocular biomechanics, and head impact and injury.
Prerequisite(s): BENG 370
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 475  Regenerative Eng  3 Credit Hours
This course will discuss principles of tissue engineering whereby the properties of stem as well as primary cells, growth factors, and extracellular matrix and their impact in the development of engineered tissue constructs will be explored. In addition, the course will also focus on supporting/enabling technologies typically utilized in engineering these constructs including nano- and micro-fabrication techniques, 3D printing, micro-patterning as well as designing principles of bioreactors, and drug and gene delivery techniques. Additionally, various tissue engineering applications will be discussed including synthetic tissues and organs that are currently under development for regenerative medicine application.
Prerequisite(s): BENG 370 and BENG 375
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science
BENG 481  Biomimetics  3 Credit Hours
The Biomimetic Engineering course will give an overview and in-depth analysis of nature's solutions to specific problems with the aim of determining appropriate engineering analogs. Students will learn mechanical principles in nature and their application to engineering devices. Mechanical behavior of biological materials as governed by underlying microstructure will be discussed. Students will work in teams on projects where they will take examples of designs, concepts and models from biology and determine their potential in specific engineering applications. 3 credit hours
Prerequisite(s): (ME 325 or BENG 325) and (BENG 370 or ME 345)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science or Arts, Sciences, and Letters

BENG 490  Directed Design Project  1 to 3 Credit Hours
Design project involving not only design but also analysis, fabrication, and/or testing. Topics may be chosen from any of the areas of bioengineering. The student will need to submit a report on his or her project at the end of the term. (F, S, W)
Restriction(s):
Can enroll if Class is Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Bioengineering

BENG 492  Guided Study in Bioengineering  1 to 3 Credit Hours
Individual study, design, or laboratory research in a field of interest to the student. Topics may be chosen from any areas of Bioengineering. The student needs to submit a report on his or her project at the end of the term. (F, S, W)
Restriction(s):
Can enroll if Class is Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Bioengineering

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Biological Science (BIOL)

BIOL 100  Principles of Biology  3 Credit Hours
A lecture course introducing non-science concentrators to major areas of biology, including cell biology, genetics, human physiology, plant biology, ecology, and evolution. Topics of current interest are discussed. Students cannot use both BIOL 100 and NSCI 120 to satisfy the Natural Sciences distribution requirements. Three hours lecture. (F,W).

BIOL 103  Anatomy and Physiology I  4 Credit Hours
The structural and functional relationships of the human body at the cellular, tissue, organ, and system levels are analyzed. Students identify the major anatomical parts and relate these to the physiological activities of the circulatory, skeletal, nervous, muscular, and digestive systems. The homeostatic effects of fluids, electrolytes, and acids and bases throughout the integrated human body are analyzed. Four hours lecture, three hours laboratory. (F).
Corequisite(s): BIOL 103L

BIOL 105  Anatomy and Physiology IIA  4 Credit Hours
The major anatomical parts of the cardiovascular, respiratory, reproductive, endocrine, nervous, and urinary systems of the human body are identified and related to the physiological activities of these systems. Emphasis is placed on the homeostatic effects of fluids, electrolytes, acids, and bases throughout the integrated human body. Four hours lecture, three hours laboratory. (W)

BIOL 130  Intro Org and Environ Biology  0 or 4 Credit Hours
An introduction to organismal and environmental biology, with emphasis on plant and animal diversity, structure, physiology, and development; ecology; and evolution. This course complements BIOL 140, which need not be taken as a prerequisite; together they constitute an introduction to biology. This course is intended for science concentrators. Three hours lecture, four hours laboratory/recreation. (F,W,S).
Corequisite(s): BIOL 130L

BIOL 130  Intro Org and Environ Biology  4 Credit Hours
An introduction to organismal and environmental biology, with emphasis on plant and animal diversity, structure, physiology, and development; ecology; and evolution. This course complements BIOL 140, which need not be taken as a prerequisite; together they constitute an introduction to biology. This course is intended for science concentrators. Three hours lecture, four hours laboratory/recreation. (F,W,S).

BIOL 140  Intro Molec & Cellular Biology  4 Credit Hours
An introduction to molecular and cellular aspects of biology with emphasis on cell structure and function, biochemistry, genetics, cell growth, and the origin of life. This course complements BIOL 130; together they constitute an introduction to biology. This course is intended for science concentrators. Three hours lecture, four hours laboratory/recreation.

BIOL 140L  Intro Molec & Cellular Biology  4 Credit Hours
An introduction to molecular and cellular aspects of biology with emphasis on cell structure and function, biochemistry, genetics, cell growth, and the origin of life. This course complements BIOL 130; together they constitute an introduction to biology. This course is intended for science concentrators. Three hours lecture, four hours laboratory/recreation.

BIOL 230  Great Experiments in Biology  3 Credit Hours
An individualized-learning course that portrays the development of modern biological science. The course does not require attendance in classes since it can be completed at home and in the library by means of study guides, audio cassettes, slide/tape presentations, and computer-assisted instruction. (F,W,S).

BIOL 240  Great Experiments Laboratory  1 Credit Hour
An individualized-learning laboratory science course that can be completed at home. Historically important and model experiments are performed in order to demonstrate how hypotheses are drawn and tested. Data are analyzed at a computer terminal. (F,W,S).

BIOL 250  Topics in Biology and Society  3 Credit Hours
An introduction to themes of biology reflecting the interaction between biology and society. Topics vary and are announced in the current Schedule of Classes. The course may be repeated no more than once under a different topic. Three hours lecture. (OC).

BIOL 290  Topics in Biology and Society Laboratory  1 Credit Hour
A laboratory course to accompany BIOL 290. Three hours laboratory. (OC).
Corequisite(s): BIOL 290
BIOL 301  Cell Biology  4 Credit Hours
Functional and structural features of cells, organelles, and macromolecules. Topics in biochemistry, and physical chemistry of cellular processes are considered. Three hours lecture, four hours laboratory. CHEM 226 is recommended. (W).
Prerequisite(s): BIOL 140
Corequisite(s): BIOL 301L

BIOL 303  Comparative Animal Physiology  4 Credit Hours
Physiological processes and their control in higher animals. Emphasis ranges from the cellular mechanisms and systemic patterns of regulation of body functions to the evolutionary and environmental adaptations determining body form and function in diverse animal types. Three hours lecture, four hours laboratory, MATH 114 is recommended. (F).
Prerequisite(s): BIOL 130 and BIOL 140 and (CHEM 124 or CHEM 134 or CHEM 144)
Corequisite(s): BIOL 303L

BIOL 304  Ecology  4 Credit Hours
Relationships between organisms and their environments. Patterns in the physical environment, physiological and behavioral adaptations, population dynamics, energy flow, nutrient cycling; succession. Three hours lecture, four hours laboratory (with field trips). (F, S).
Prerequisite(s): BIOL 130 and (MATH 104 or MATH 105 or MATH 113 or MATH 115 or MPLS with a score of 116)
Corequisite(s): BIOL 304L

BIOL 305  Anatomy and Physiology IIB  4 Credit Hours
The major anatomical parts of the cardiovascular, respiratory, reproductive, endocrine, nervous, and urinary systems of the human body are identified and related to the physiological activities of these systems. Emphasis is placed on the homeostatic effects of fluids, electrolytes, acids, and bases throughout the integrated human body. Students complete additional work beyond what is required in BIOL 105. Four hours lecture, three hours laboratory.
Prerequisite(s): BIOL 103
Corequisite(s): BIOL 305L

BIOL 306  General Genetics  3 Credit Hours
An intermediate course in classical, molecular and evolutionary genetics. The structure, function, and inheritance of genetic material in prokaryotes, eukaryotes and viruses are discussed. Topics include DNA and chromosome structure, genetic linkage and mapping, gene expression and its regulation, human genetic disease, and population genetics. Three hours lecture, one hour recitation. (F).
Prerequisite(s): BIOL 130 and BIOL 140
Corequisite(s): BIOL 306R

BIOL 306R  General Genetics Recitation  0 Credit Hours
Recitation component of BIOL 306. Must be taken concurrently with BIOL 306.
Corequisite(s): BIOL 306

BIOL 307  General Genetics Laboratory  1 Credit Hour
A semester-long laboratory course dealing with investigation and analysis in genetics. Laboratory sessions will include genetic crosses of plants and animals and the subsequent analysis to determine linkage and gene mapping location. Computer exercises will also be used to establish genetic tools for modern molecular analysis. Four hours laboratory. (W).
Prerequisite(s): BIOL 306*
Corequisite(s):
BIOL 333  Plant Biology  4 Credit Hours
A thorough survey of the evolutionary trends in plant reproduction and morphology will be considered. This survey will extend into the field of plant anatomy, but not plant physiology, which is covered in a separate course. Major groups to be studied include: bacteria, algae, fungi, liverworts, lichens, mosses, ferns, and seed plants. Certain less familiar groups will also be emphasized. Plant diversity will be examined from the perspective of its import to civilizations of the past and future.
Three hours lecture, four hours laboratory. (F, S).
Prerequisite(s): BIOL 130
Corequisite(s): BIOL 333L

BIOL 335  Plant Physiology  4 Credit Hours
Physiological principles as they apply to the major plant groups.
Topics include cellular metabolism, water balance, translocation, photosynthesis, mineral nutrition, growth and development and production of secondary substances. Three hours lecture, four hours laboratory. (W).
Prerequisite(s): BIOL 130 and BIOL 140
Corequisite(s): BIOL 335L

BIOL 337  Plant Ecology  3 Credit Hours
This course focuses on different aspects of the relationship between plants and their environment. Topics include: a) interactions of plants with the physical environment; b) ways in which the environment acts to shape plant populations through evolution; c) intra- and interspecific interactions among individuals; and d) large-scale patterns and processes at the landscape-level. Three hours lecture.
Prerequisite(s): BIOL 130

BIOL 350  Introduction to Neurobiology  4 Credit Hours
An introduction to nervous systems and how they function. This course includes the cellular physiology and anatomy of nervous systems in vertebrates and invertebrates, and how these cellular activities are integrated into systems to produce complex, coordinated behavior. Three hours lecture.
Prerequisite(s): BIOL 130 and BIOL 140
Corequisite(s): BIOL 350L

BIOL 352  Endocrinology  3 Credit Hours
This class will provide intermediate and advanced undergraduates with a basic understanding of the function of the endocrine system. The course will progress from a consideration of basic concepts and mechanisms to the physiology (function) of specific endocrine systems. Interactions between organ systems will also be emphasized. Specific sections of the course will focus on function of the endocrine system during stress, fluid balance, metabolism (including calcium, glucose, lipid, and proteins), reproductive growth, development, and aging.
Prerequisite(s): BIOL 140 and BIOL 130 and CHEM 134

BIOL 353  Ornithology  3 Credit Hours
A study of the unique features of birds as representatives of vertebrates, including their morphology, anatomy, physiology, physics of flight, mating systems, social structure, vocalizations, orientation and migration, origin and evolution, growth and development, and issues in avian conservation. Students learn about the current research on bird migration at the Rouge River Bird Observatory on campus. Students develop individual species analysis of life and natural histories. Three hours lecture.
Prerequisite(s): BIOL 130

BIOL 355L  Ornithology Lab  1 Credit Hour
A laboratory course to accompany BIOL 353. Four hours laboratory.
Prerequisite(s): BIOL 353

BIOL 357  Human Physiology  3 Credit Hours
Systems of the human body and their function are investigated individually and as part of an integrated natural living system. Topics include cell structure and function of nerves, muscles, the lungs, heart, blood vessels, kidneys, digestive tract, endocrine glands, brain, and reproductive organs.
Prerequisite(s): (BIOL 130 and BIOL 140) or (BIOL 103 and BIOL 105)

BIOL 360  Population Genetics & Evolution  3 Credit Hours
Processes which change the genetic composition of populations: mutation, gene flow, genetic drift, and natural selection. The origin of subspecies, species, and higher taxa. Evidence of evolution from the geological records, comparative anatomy, comparative biochemistry and other sources. Three hours lecture.
Prerequisite(s): BIOL 130 and BIOL 140 and (MATH 104 or MATH 105 or MATH 115 or MPLS with a score of 116) or MATH 113

BIOL 361  Population Genetics & Evolution Lab  1 Credit Hour
A laboratory course to accompany BIOL 360. Four hours laboratory.
Prerequisite(s): BIOL 360*

BIOL 370  Principles of Biochemistry  3 Credit Hours
A concise but comprehensive survey of various areas of biochemistry designed for non-biochemistry majors. The course follows the standard approach to the subject including a description of cells, their structure and constituent macromolecules (proteins, nucleic acids, carbohydrates and lipids), enzymology, bioenergetics, intermediary metabolism and gene regulation. Students cannot take both BCCH 370 and 470 or 471 for any combination of concentration, cognate or minor requirement. Three hours lecture.
Prerequisite(s): BIOL 140 and CHEM 226

BIOL 380  Epidemiology  2 Credit Hours
A study of disease occurrence and spread in human populations. The primary concern is with groups of persons, rather than individuals. Emphasizes methods of study that would contribute to understanding disease etiology. Two hours lecture. BIOL 301 and 385 are recommended.
Prerequisite(s): BIOL 140

BIOL 381  Biotechnology & Bioprocessing  4 Credit Hours
Biotechnology and Bioprocessing class is centered on the study of bioengineering applications found today in the medical and agricultural industries. Students use microorganisms, plant and animal tissue culture, and enzymes during the laboratory period, practicing the fundamentals of hands-on genetic engineering and material processing. Students establish and purify proteins from recombinant organisms. Besides technology, ethical and environmental concerns are discussed in the lecture. Three hours lecture, four hours laboratory.
Prerequisite(s): BIOL 140

BIOL 385  Microbiology  4 Credit Hours
The biology of microorganisms is considered through study of the properties of bacteria, fungi, algae, protozoa, and viruses. Microbial structures are discussed and correlated with their function. Aspects of cellular metabolism pertinent to microorganisms are emphasized. The interaction of microorganisms and their environment, animate and inanimate, is discussed with respect to the beneficial or harmful effects of the different microbial groups. Laboratory exercises introduce the student to basic, practical microbiological techniques and illustrate various principles of microbial life. Three hours lecture, four hours laboratory. (F,S).
Prerequisite(s): BIOL 130 and BIOL 140
Corequisite(s): BIOL 385L
BIOL 390  Topics in Biology  1 to 4 Credit Hours
Examination of problems and issues in selected areas of biology. Title in Schedule of Classes changes according to content. This course may be repeated for credit when specific topics differ. Permission of Instructor. (OC).

BIOL 402  Physiology of Excitable Cells  3 Credit Hours
An in-depth analysis of the mechanisms underlying electrical communication within and between mammalian cells. The major emphasis is on excitable cells in the brain, heart, and skeletal muscle and their functional integration. Fulfills the Biology major capstone requirement.
Prerequisite(s): BIOL 130 and BIOL 140 and (BIOL 303 or BIOL 305 or BIOL 350)
Restriction(s):
Can enroll if Class is Junior or Senior

BIOL 404  Mech. Chronic Human Disease  3 Credit Hours
This course focuses on the biochemical, molecular and cellular mechanisms underlying the progression of chronic diseases, such as diabetes mellitus and atherosclerosis. Techniques in epidemiology, pathology, genetics, molecular biology, and biochemistry are used to understand how relevant physiological processes become pathological. The examination of chronic diseases provides an opportunity to understand biological processes across many scales of life, from extracellular matrix proteins to cells in blood vessel walls to risk factors in patient populations to the pharmacology of treatments. Use of primary literature is emphasized. Three hour lecture.
Prerequisite(s): BIOL 301 or BIOL 306 or BIOL 357 or BCHM 370 or BIOL 370 or CHEM 370 or BCHM 471 or BIOL 471 or CHEM 471
Restriction(s):
Can enroll if Class is Junior or Senior

BIOL 405  Applied & Environ Microbiology  4 Credit Hours
The study of the diversity, structure and function of microorganisms as they interact with their environment. Emphasis will be placed on soil microbiology (fungi, bacteria, microalgae) and plant-microbe interactions (pathogens, symbioses). Ecological topics include decomposition, nutrient cycling, bioremediation and agroecosystems. Three hours lecture, four hours laboratory. (W).
Prerequisite(s): BIOL 385 or MICR 385
Corequisite(s):
Restriction(s):
Can enroll if Class is Junior or Senior

BIOL 406  Microbial Genetics  3 Credit Hours
This molecular genetics course emphasizes bacteria and viruses. Topics include chromosome structure and replication, recombination, DNA repair, genetic mapping, mechanisms of gene transfer, regulation of gene expression, and mutagenesis. Three hours lecture. (W, YR)
Prerequisite(s): MICR 385 or BIOL 385
Corequisite(s):

BIOL 410  Diversity Issues Health Care  3 Credit Hours
This course will address the effect of race, age, gender, religion, and economic status on medical research and healthcare. Through an examination of clinical trials and case studies, students will learn how medical research is performed in the United States, and what health care treatments and options for patients are available. Medical treatment and disease topics will be selected and will be evaluated as to how they are influenced by the criteria listed. The examples will focus on both cultural differences and inequity, in national and global settings. (AY).
Prerequisite(s): BIOL 130 and BIOL 140
Restriction(s):
Can enroll if Class is Junior or Senior

BIOL 412  Vertebrates  5 Credit Hours
A comparative study of the morphology of living animals, including an analysis of structural and functional features, diversity, and macroevolution. The major emphasis is on the comparative functional anatomy of living vertebrates. Three hours lecture, eight hours laboratory. Fulfills the biology major capstone requirement. This course was formerly offered as 312; students cannot receive credit for both BIO 312 and 412. (W, AY)
Prerequisite(s): (BIOL 303 or BIOL 305 or BIOL 335) or BIOL 360
Restriction(s):
Can enroll if Class is Junior or Senior

BIOL 414  Limnology  4 Credit Hours
The study of the structural and functional relationships and productivity of organisms in lakes and streams as they are regulated by their physical, chemical and biotic environments. Laboratories will emphasize field study of area lakes and streams. Three hours lecture, four hours laboratory. BIOL/ESCI 304 or ESCI 275 recommended.
Prerequisite(s): BIOL 130 and (CHEM 136 or CHEM 146)
Corequisite(s): BIOL 414L

BIOL 416  Stream Ecology  4 Credit Hours
A study of the physical, chemical and biological characteristics of streams and rivers. Three hours lecture, four hours laboratory. (OC).
Prerequisite(s): BIOL 304

BIOL 419  Behavior and Evolution  3 Credit Hours
An in-depth examination of how evolutionary processes shape behavior, focusing on the influence of natural, sexual, and kin selection. Topics include behavioral genetics, natural selection, sexual selection, kin selection, optimality, game theory, evolutionary stable strategies, phylogenetics, and the comparative method.
Prerequisite(s): BIOL 140 and BIOL 130
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

BIOL 420  Advanced Field Ecology  4 Credit Hours
An intense study of the morphology of living animals, including an analysis of structural and functional features, diversity, and macroevolution. The major emphasis is on the comparative functional anatomy of living vertebrates. Three hours lecture, eight hours laboratory. Fulfills the biology major capstone requirement. This course was formerly offered as 312; students cannot receive credit for both BIO 312 and 412. (W, AY)
Prerequisite(s): (BIOL 303 or BIOL 305 or BIOL 335) or BIOL 360
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

BIOL 422  Conservation Biology  3 Credit Hours
This course is a study of the historical and current preservation of global biodiversity. The value of biodiversity, extinction, threats to biodiversity, and both ex situ and in situ conservation strategies are considered. (W, AY)
Prerequisite(s): BIOL 304 or ESCI 304
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

BIOL 426  Population Genetics  3 Credit Hours
A study of the diversity, structure and function of microorganisms as they interact with their environment. Emphasis will be placed on soil microbiology (fungi, bacteria, microalgae) and plant-microbe interactions (pathogens, symbioses). Ecological topics include decomposition, nutrient cycling, bioremediation and agroecosystems. Three hours lecture, four hours laboratory. (W).
Prerequisite(s): BIOL 385 or MICR 385
Corequisite(s):
Restriction(s):
Can enroll if Class is Junior or Senior
BIOL 424  Biology of Spiders  4 Credit Hours
An introduction to the biology of spiders and related arachnids. Lectures include spider anatomy, natural history, ecology, and evolution. Laboratory work includes specimen preparation, use of dichotomous keys, spider behavior, field methods, rearing and collecting techniques, and identification of spiders and their webs. Three hours lecture, four hours laboratory. Students cannot receive credit for both Biology 424 and Biology 524.
Prerequisite(s): BIOL 130
Restriction(s):
Cannot enroll if Class is Graduate

BIOL 430  Medical Virology  3 Credit Hours
A general description of the history and nature of animal virus disease. Emphasis is placed on the pathogenesis and clinical description of specific diseases.
Prerequisite(s): BIOL 385 or MICR 385

BIOL 440  Micro Genetics & Physi Lab  1 Credit Hour
This course emphasizes the use of advanced microbiological techniques for understanding the genetics and physiology of microorganisms. Experiments focus on the understanding of general microbial phenomena, such as nutrition, metabolism and biochemistry; protein and nucleic acid synthesis; energy generation, enzyme regulation, membrane transport, motility, differentiation, cellular communication and the behavior of populations.
Prerequisite(s): BIOL 385* or MICR 385* or BIOL 301* or BIOL 406* or MICR 406* or BIOL 485* or MICR 485*
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

BIOL 450  Virology  4 Credit Hours
The first half of this course deals with bacterial viruses, with emphasis on classical events in this field. The second half surveys the field of animal viruses, with emphasis on recent discoveries, including replication, pathogenesis, and viral association with cancers. Three hours lecture, four hours laboratory. (AY,W).
Prerequisite(s): CHEM 226 and (MICR 385 or BIOL 385)

BIOL 452  Med & Env Toxicology  4 Credit Hours
Emphasis is on the toxicity, toxico-kinetics and toxicodynamics of environmental toxicants to human pathophysiology. Examples are based on toxicant exposure and subsequent diseases in humans and other biological systems. Three hours lecture, four hours laboratory. (W)
Prerequisite(s): BIOL 140 and CHEM 225 and (BIOL 370 or BIOL 470 or BIOL 301)
Restriction(s):
Cannot enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

BIOL 455  Immunology  4 Credit Hours
A detailed study of the field of immunology. Among the topics covered are various aspects of the immunological response, such as humoral or cell-mediated immunity, cell-cell interactions, and immunology as related to the cause and prevention of disease. Three hours lecture, four hours laboratory. (AY,F).
Prerequisite(s): BIOL 385 or BIOL 301 or MICR 385

BIOL 456  Behavioral Biology  4 Credit Hours
This course uses evolutionary and ecological theory to evaluate behavioral adaptations of organisms to their environment. Topics discussed include game theory, kin selection, sexual selection, eusociality, orientation and navigation, and signal evolution. Laboratory sessions include: observations of animal behavior, required manipulations of live animals, and field trips. Three hours of lecture, one four-hour laboratory. Students cannot receive credit for both BIOL 456 and BIOL 556. Student seeking graduate credit should elect BIOL 556.
Prerequisite(s): BIOL 130
Corequisite(s):
Restriction(s):
Cannot enroll if Class is Specialist or Graduate or Doctorate

BIOL 459  Pathogenic Microbiology  4 Credit Hours
An introduction to pathogenic microorganisms and mechanisms of microbial pathogenicity. Disease-causing bacteria, fungi, viruses, and protozoa are studied. Laboratories emphasize clinical approaches to isolation, identification, and treatment. Three hours lecture, four hours laboratory. (AY,F).
Prerequisite(s): BIOL 385 or MICR 385

BIOL 470  Biochemistry I  3 Credit Hours
Life processes from a chemical viewpoint: structure/function relationships of biomolecules with emphasis on proteins, enzyme kinetics, and mechanisms of action. Three hours lecture. (F).
Prerequisite(s): BIOL 130 and BIOL 140 and CHEM 226

BIOL 471  Biochemistry II  3 Credit Hours
Intermediary metabolism, bioenergetics, energy transformation, metabolic interrelationships, biochemical regulation, highly structured subcellular biochemical systems. Three hours lecture. (W).
Prerequisite(s): BCHM 470 or BIOL 470 or CHEM 470

BIOL 472  Biochemistry Lab I  1 Credit Hour
The techniques of preparative and analytical biochemistry. Preparation and characterization of proteins and nucleic acids. Physical and chemical properties of proteins and nucleic acids. Four hours laboratory. CHEM 344 Recommended. (F).
Prerequisite(s): (BIOL 470* or BCHM 470* or CHEM 470*) and CHEM 227

BIOL 473  Biochemistry Laboratory II  1 Credit Hour
The techniques of preparative and analytical biochemistry. Preparation and characterization of lipids and carbohydrates. Methods in metabolism. Four hours laboratory. (W).
Prerequisite(s): (BCHM 471* or BIOL 471* or CHEM 471*) and (BCHM 472 or BIOL 472 or CHEM 472)
Corequisite(s):

BIOL 474  Molecular Biology  4 Credit Hours
This course will emphasize the molecular biology of eukaryotes, and topics will include genome organization and complexity, chromatin structure and function, gene expression, DNA replication and repair, genetic rearrangements, and the molecular biology of development. The laboratory will emphasize the application of recombinant DNA technology to the study of biological problems. Three hours lecture, four hours laboratory. (W).
Prerequisite(s): (BCHM 470 or BIOL 470 or CHEM 470) or (BCHM 370 or BIOL 370 or CHEM 370) and CHEM 227
Corequisite(s): BIOL 474L
BIOL 476  Cancer Cell Biology  3 Credit Hours
Cancer is a disease of anti-social cell behavior. This course educates students on the genetics, molecular and cellular changes that normal cells undergo to become cancer cell. Major emphasis is on providing a mechanistic insight into fundamental questions in cancer cell biology. The course also discusses currently available therapeutic treatments and emerging issues in cancer therapy research. Fulfills capstone requirement for biology majors. Three hours lecture.
Prerequisite(s): BIOL 130 and BIOL 140 and (BIOL 301 or BIOL 306 or BIOL 370 or BCHM 370 or CHEM 370 or BIOL 385 or MICR 385)
Restriction(s):
Can enroll if Class is Junior or Senior
BIOL 485  Physiology of Micro-organisms  3 Credit Hours
An in-depth examination of the physiology of microorganisms. Areas of emphasis include the growth and nutrition of microorganisms, the development of viruses, the microbial degradation of organic compounds, the regulation of degradation reactions, and the biosynthesis of uniquely microbial compounds and secondary metabolites, such as antibiotics and toxins. Consideration is given to the natural environments of specific microorganisms. Three hours lecture. (W, YR)
Prerequisite(s): (BIOL 385 or MICR 385 or BIOL 370* or CHEM 370 or BCHM 370) and CHEM 225*
BIOL 489  Origins of Biological Sciences  3 to 4 Credit Hours
A study of the development of the science of biology as revealed in the writing and experiments of major biologists of the past and present. (OC).
BIOL 490  Seminar in Biology/Microbiology  1 to 6 Credit Hours
Directed research on a problem culminating in the preparation of a paper and presentation of a public seminar. Tutorials, lectures and student seminars are given on selection and formulation of research problems, experimental design, and statistical treatment of data. May be repeated for credit with permission of advisor. (OC).
BIOL 491  Capstone Course in Biology  3 Credit Hours
A culminating course for biology majors which focuses on an area of current biological research and integrates material from different subdisciplines of biology. Topic varies and is announced in the Schedule of Classes. Three hours lecture.
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is Biological Sciences
BIOL 492  Capstone Research Experience  3 Credit Hours
An approved research experience with a UM-D biology faculty member which integrates material from different subdisciplines of biology. Research results are reported in a poster or seminar presentation or in a manuscript submitted for publication.
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is Biological Sciences
BIOL 493  Capstone Teaching Experience  3 Credit Hours
An approved teaching experience which integrates material from different subdisciplines of biology. Students work as a student teaching assistant/student mentor in the laboratory portion of a biology course.
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is Biological Sciences
BIOL 495  Off-Campus Research Participat  1 to 3 Credit Hours
Participation in ongoing experimental research at an off-campus laboratory (or in the field). Arrangements made between the off-campus researcher, the student, and the Biology concentration advisor. No more than six credit hours combined from BIOL 490, 495, 498, and 499 may be counted toward the 120 hours required for a degree. Four to twelve hours laboratory. Permission of instructor. (F,S).
BIOL 497  Seminar in Biology  1 Credit Hour
Topics of current interest in Biology will be presented by guest lecturers, faculty members or students. Topics chosen will vary from term to term. Can be elected up to three times. One hour seminar. (W).
BIOL 498  Independent Study in Biology  1 to 3 Credit Hours
Library research and independent study performed under the guidance of a faculty member. Four to twelve hours readings. Permission of instructor. (F,S).
BIOL 499  Laboratory in Biological Resrh  1 to 3 Credit Hours
Directed laboratory research performed under the guidance of faculty member. Four to twelve hours laboratory. Permission of Instructor. (F,S).

An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Business Administration (BA)

BA 100  College of Business Foundation  1 Credit Hour
Business Foundations provides an introduction to a variety of topics critical to student success. Topics presented in this class include an overview of the Bachelor of Business Administration, on-campus resources available to ensure student success, academic advising, internships, student organizations, business communication, team membership, and academic integrity.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior
BA 210  Intro to Applied Creativity  3 Credit Hours
This is a course designed for undergraduate students that is aimed at improving their understanding of creativity and creativity problem solving. In addition, students will develop skills and learn methodologies, useful in a variety of contexts, to enhance personal and organizational creativity. Topics include: exploring the need for creativity, identifying specific creative challenges, methodologies to enhance personal and organizational creativity, and applying creativity to daily situations.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
BA 300 Career Planning & Develop  1 Credit Hour
This course focuses on providing students with the necessary skills to achieve their career goals. Topics include: laying the groundwork to selecting a career, developing job search correspondence, developing job search techniques, developing a networking strategy, developing interviewing skills, asking for references and recommendations, and evaluating and negotiating job offers. Students will be required to develop a job skills portfolio which will include documentation evidencing the application of these skills.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Business

BA 305 College to Career Coaching  0 Credit Hours
This course focuses on providing students with an ongoing process to help them develop and apply the skills and knowledge necessary to achieve their career goals. Through this course, eligible BBA students in the College of Business will have the opportunity to work, one on one, with an experienced career coach to enable them to successfully launch their career strategy upon graduation from the BBA program. Coaches actively partner with our students in a thought provoking and creative process that inspires them to maximize their personal and professional potential that helps bridge the gap between classroom knowledge and the realities of the business world.
Prerequisite(s): BA 300 or BI 350 or BI 355
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Business
Cannot enroll if Major is Prebusiness

BA 320 Proj Mgmt & Leadership Skills  3 Credit Hours
This course is intended to be a writing intensive problem based interdisciplinary course in project management skills. Topics covered will include benefits of project management, definition of a project, development of a project plan, execution of a plan, and management of change. Leadership skills will be emphasized as they relate to conflict resolution, motivating and coaching team members and listening to team members. Students will complete and present a project plan using the appropriate project management and presentation software.
Restriction(s):
Can enroll if Class is Junior or Senior

BA 330 Managerial Communication  3 Credit Hours
This course is designed to improve the student’s ability to communicate effectively within an organizational setting. Communication theory, strategies, techniques and skills that are essential for success in the business environment will be examined. Specific objectives during the semester will be to examine and improve managerial writing ability and to enhance interpersonal communication skills.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40
Restriction(s):
Can enroll if Class is Junior or Senior

BA 400 Corporate Responsibility  3 Credit Hours
The focus of this writing intensive interdisciplinary course will be on examining the responsibility, if any, that business should have as part of the solution to the challenges of globalization. As part of this examination, the course will focus on corporate responsible behavior and its relationship to corporate governance and maximizing shareholder value. The ethical, business, and legal cases as they relate to corporate responsible behavior in the areas of human rights, labor, environment, and corruption will be examined.
Prerequisite(s): COMP 280 or COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior
Cannot enroll if Level is Graduate

BA 480 Seminar: Bus Administration  1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members.
Restriction(s):
Can enroll if Class is Senior

BA 480A Seminar: Bus Administration  3 Credit Hours
Topic: Business Planning. This course aims to be a multidisciplinary seminar that requires students to explore a potentially profitable business idea and to develop an appropriate business plan as a document increasingly adopted for the submission and evaluation of business proposals. The interactive business laboratory will lead students from the assessment of their business idea to the definition of a detailed market research and the description of a tractable strategic planning. Finally, students will be also required to devise an accurate budget and a basic pro-forma financial statement in order to give accounting consistency to the business idea described in the first part of their business plans. Topics covered include: market analysis, strategic planning and organizational structure, cost definition & analysis, break-even point, budgeting and performance representation. (OC)

BA 480D Entre& Comm: Doing Bus in Det  3 Credit Hours
This entrepreneurship class addresses innovation, creativity, and the commercialization process to explore the implementation and feasibility of new business ideas. Topics include opportunity recognition, creativity and design thinking, market assessment, strategic and financial planning. Students will be exposed to resources from urban areas including speakers with experience and expertise in the entrepreneurial community. Students will use events and organizations like Detroit SOUP or Start Garden to understand urban business needs and idea generation. From there they will work in teams developing an understanding of creative thinking, innovation, market assessment and effective communication of business and commercialization opportunities while taking a business idea through an iterative process toward market realization.
Restriction(s):
Can enroll if Class is Junior or Senior
### Business Economics (BE)

#### BA 490 Research: Bus Administration  1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit.

**Restriction(s):**
- Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

#### Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally

### Business Internship (BI)

#### BI 350 Business Internship  3 Credit Hours
The internship provides full-time, paid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and other paperwork at the end of each work assignment and participate in an evaluative session with the internship staff.

**Restriction(s):**
- Can enroll if College is Business

#### BI 355 Part-Time Business Internship  1 Credit Hour
The internship provides part-time, paid and unpaid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and other paperwork at the end of each work assignment and participate in an evaluative session with the internship staff. (A maximum of 6 credit hours of internship course work may be applied toward elective graduation requirements.)

**Restriction(s):**
- Can enroll if College is Business

#### BI 360 Business Internship  0 Credit Hours
This internship provides full or part-time, paid and unpaid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and other paperwork at the end of each work assignment and participate in an evaluative session with the internship staff.

**Prerequisite(s):** BA 300

**Restriction(s):**
- Can enroll if College is Business
BI 450  Business Internship II  3 Credit Hours
The internship provides full-time, paid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and other paperwork at the end of each work assignment and participate in an evaluative session with the internship staff.

Prerequisite(s): BI 350

BI 455  Part-Time Bus Internship II  1 Credit Hour
The internship provides part-time, paid and unpaid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and other paperwork at the end of each work assignment and participate in an evaluative session within the internship staff. (A maximum of 6 credit hours of internship course work may be applied toward elective graduation requirements.)

Prerequisite(s): BI 350

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Degree is Bachelor of Business Admin

BI 460  International Business Intern  1 to 3 Credit Hours
The internship allows flexibility to engage in applied practical work experience outside of the United States, through paid or unpaid full or part time work experiences. Participating organizations hire students within parameters set by the Internship Office throughout their experience. Students are required to submit reports, evaluation documents and participate in an assessment session with the internship staff. Students are responsible for their own legal, housing and transportation issues. This course will satisfy general elective credit.

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Business
Cannot enroll if Major is Prebusiness

BI 470  Business Internship III  3 Credit Hours
The internship provides full-time paid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students will have an increasing level of responsibility and application of academic knowledge, or students will be involved with application of new academic knowledge. Students are required to submit a report and other paperwork at the end of the work assignment and participate in an evaluative session with the internship staff.

Prerequisite(s): BI 450

Restriction(s):
Can enroll if College is Business
Cannot enroll if Major is Prebusiness

BI 475  Part-Time Bus Internship III  1 Credit Hour
The internship provides part-time paid and unpaid business experience for students in a formal, monitored program. Participating employers hire students within parameters set by the internship program. Students will have an increasing level of responsibility and application of academic knowledge, or students will be involved with application of new academic knowledge. Students are required to submit a report and other paperwork at the end of each work assignment and participate in an evaluative session within the internship staff. (A maximum of 6 credit hours of internship course work may be applied toward elective graduation requirements.)

Prerequisite(s): BI 455

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Degree is Bachelor of Business Admin

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Business Policy and Strategy (BPS)

BPS 441  Small Business Management  3 Credit Hours
This course explores the fundamental processes of starting and managing a small business; it will survey a number of business disciplines required to effectively manage small enterprises. Topics covered include modes of business entry, business planning, customers & marketing, and managing growth. The course will culminate in the development and presentation of a comprehensive business plan for a new or small business. (YR)

Prerequisite(s): BA 320 and BA 330 and ACC 299

BPS 451  Strategic Management  3 Credit Hours
This course is intended to be a comprehensive and integrative capstone course for the undergraduate business student. The central focus of this course is strategic management as opposed to the functional orientation that the student has experienced in most of his/her previous courses. Emphasis is on strategy formulation and implementation. Topics covered include the analysis of a company's external and internal environment; the development of a strategic vision and organizational objectives; the design of strategy at the functional, business, corporate, and international levels; and the creation of the organizational structure, operational policies and procedures, and reward systems.

Prerequisite(s): FIN 401 and (MIS 310 or ITM 310 or ACC 380) and OB 354 and MKT 352 and OM 300

Restriction(s):
Can enroll if Class is Senior
Can enroll if Degree is Bachelor of Business Admin

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Chemistry (CHEM)

CHEM 090  Introduction to Chemistry  3 Credit Hours
An introductory course in chemistry stressing fundamental principles of chemistry and the application of mathematics to chemistry and problem-solving. Topics will include chemical formulas and equations, stoichiometry, descriptive inorganic chemistry, behavior of gases and atomic structure. Students with high school chemistry and three years of high school mathematics should elect CHEM 114. Three hours lecture. (F).
CHEM 091  Introduction to Chemistry II  3 Credit Hours
The course is designed for the Chemistry 134/144 student whose background in chemistry is inadequate for success in 134/144. This course will be offered concurrently with Chem 090 (Introduction to Chemistry). It will begin after the first Chem 134/144 exam and will encompass the final nine weeks of the term. Topics will include chemical formulas and equations, stoichiometry, descriptive inorganic chemistry, behavior of gases, and atomic structure.

CHEM 100  Chemistry and Society  0 or 4 Credit Hours
An introductory course for nonscientists that examines the way chemistry impacts our world. The course will focus not only on what modern chemistry has accomplished, but more generally on the way scientists think and how they function. Selected topics include (a) air and water pollution, ozone layer, global warming, acid rain, and other environmental chemistry; (b) the chemistry of plastics and polymers; (c) the chemistry of drugs and medicines; and (d) biotechnology and genetic chemistry. Other topics include the influence of the media on scientific issues and the decision-making process in science. Three hours lecture, three hours lab. (YR).

CHEM 111  Intro Gen Organic & Biochem  4 Credit Hours
A one-semester course covering the structure of atoms and molecules; an introduction to organic chemistry; and the properties of solids, solutions and gases. This course is open only to students in approved cooperating nursing programs. NOT acceptable as a prerequisite to CHEM 116. Three hours lecture, one hour recitation, three hours laboratory. (F).

CHEM 112  Intro to Organic & Biochem  2 Credit Hours
This is a two-credit course containing only the organic and biochemistry portions of CHEM 111. Students who elect this course are to attend those lectures and laboratory sessions of CHEM 111 that pertain to organic and biochemistry as designated by the instructor. (F).

CHEM 116  General Chemistry II  4 Credit Hours
Continuation of CHEM 114. Topics covered in this portion of the course are equilibria and reaction rates, oxidation and reduction thermodynamics, electrochemistry, and descriptive chemistry of the most common elements. Three hours lecture, one hour recitation, three hours laboratory. A student completing CHEM 114 and 116 will be prepared to enter advanced chemistry courses. (F,W,S).
Prerequisite(s): CHEM 114
Corequisite(s): CHEM 116L

CHEM 124  General Chemistry I  4 Credit Hours
An introduction to phenomena and principles of chemistry with emphasis on developing an understanding of the fundamentals of chemical processes. Concepts to be explored are chemical reactions, thermodynamics, equilibria, and kinetics. For students considering careers in life sciences, physical sciences and engineering. Three hours lecture, one hour recitation, three hours laboratory. Prerequisites are one year of high school chemistry and previous or concurrent enrollment in MATH 104 or 105. (F,W,S).
Prerequisite(s): MATH 104* or MATH 105* or MPLS with a score of 113
Corequisite(s): CHEM 124L

CHEM 134  General Chemistry IA  4 Credit Hours
An introduction to chemical phenomena and principles with an emphasis on developing both an understanding of chemistry and an appreciation of what chemists do. Students will investigate the fundamentals of chemistry in the context of real-world problems and will utilize systems of biological and environmental importance. Core concepts include stoichiometry, aqueous chemistry, gas laws, thermodynamics, atomic structure, molecular structure and bonding. Three hours lecture, one hour recitation, three hours laboratory. Primarily designed for students considering careers in life sciences or physical sciences. (F,W,S)
Prerequisite(s): MATH 104* or MATH 113* or MPLS with a score of 105 or MATH 105* or MATH 115* or MPLS with a score of 115
Corequisite(s): CHEM 134L

CHEM 136  General Chemistry IIA  4 Credit Hours
Continuation of CHEM 134. Concepts explored include conceptual and quantitative treatments of intermolecular forces, physical properties of solutions, chemical kinetics, chemical equilibria, acid-base equilibrium, thermodynamics, and electrochemistry. Primarily designed for students majoring in the physical sciences and the life sciences. (F,W,S)
Prerequisite(s): CHEM 124 or CHEM 134 or CHEM 144
Corequisite(s): CHEM 136L

CHEM 144  Gen Chemistry IB  0 or 4 Credit Hours
This course consists of an introduction to chemistry, its phenomena, and principles explored in the context of real-world examples (e.g. the automobile). Core concepts include states of matter, atomic and electronic structure, properties of reactions (acid-base and reduction-oxidation), structure and bonding, gas laws, stoichiometry, thermodynamics, chemical equilibria, and the chemical composition of the atmosphere and air pollution problems. Three hour lecture, one hour recitation, three hours laboratory. Primarily designed for students considering careers in engineering. (F)
Prerequisite(s): MATH 105* or MPLS with a score of 113 or MPLS with a score of 115
Corequisite(s): CHEM 144L

CHEM 146  General Chemistry IIB  0 or 4 Credit Hours
Continuation of CHEM 144. This course consists of an introduction to chemistry, its phenomena, and principles explored in the context of real-world examples (e.g. the automobile). Core concepts to be explored include the solid state, chemical kinetics, electrochemistry and its applications (e.g. batteries, fuel cells, and corrosion), an introduction to organic functional groups, their reactions, and spectroscopic identification, and the preparation and properties of synthetic polymers. Primarily designed for students considering careers in engineering. (W)
Prerequisite(s): CHEM 124 or CHEM 134 or CHEM 144
Corequisite(s): CHEM 146L

CHEM 225  Organic Chemistry I  3 Credit Hours
The initial course in organic chemistry. A general introduction to organic chemistry with emphasis on the development of structure theory and functional group chemistry. Three hours lecture, one hour recitation. (F,S).
Prerequisite(s): CHEM 136 or CHEM 146
Corequisite(s): CHEM 225R

CHEM 225R  Organic Chemistry I Recitation  0 Credit Hours
Recitation component of CHEM 225. Must be taken concurrently with CHEM 225.
Corequisite(s): CHEM 225
CHEM 226 Organic Chemistry II 3 Credit Hours
A continuation of CHEM 225. Topics include functional group chemistry and properties of carbohydrates, amino acids, and aromatic compounds. Three hours lecture, one hour recitation. CHEM 225 and 226 constitute a two-semester sequence in organic chemistry, suitable for students in the basic sciences or engineering or with interests in one of the health professions. (W,S).
Prerequisite(s): CHEM 225
Corequisite(s): CHEM 226R
CHEM 226R Organic Chemistry II Rec 0 Credit Hours
Recitation component of CHEM 226. Must be taken concurrently with CHEM 226.
Corequisite(s): CHEM 226

CHEM 227 Organic Chemistry Laboratory 2 Credit Hours
Development of the basic laboratory techniques of organic chemistry. The chemistry of functional groups is studied and various organic compounds are synthesized and purified. Eight hours laboratory. (F,W,S).
Prerequisite(s): CHEM 226

CHEM 285 Introduction to Glass Blowing 1 Credit Hour
A study of the nature, properties, and manufacture of glass. Laboratory experience in the manipulation of glass and the construction of scientific apparatus. Discussions, laboratory, and field trips. (AY).

CHEM 303 Inorganic Chemistry I 3 Credit Hours
A study of the chemistry of the elements and their periodic relationship. Bonding theories and structures as well as descriptive chemistry of the representative elements will be emphasized. Three hours lecture. (F).
Prerequisite(s): CHEM 136 or CHEM 146

CHEM 325 Principles of Organic Chem 3 Credit Hours
A one-semester introduction to the compounds of carbon, with an emphasis on structure, preparation, reactivity and characterization of different functional groups. Both aliphatic and aromatic compounds will be examined. The important role of organic compounds in modern society will be highlighted with real world examples including fuels, detergents, plastics, medicines, biomolecules, environmental pollutants and additives. This course may not be used to satisfy the organic chemistry prerequisite for the Biochemistry, Biology, Chemistry, or Microbiology degree programs. Students may not receive credit for both CHEM 225 and 325. CHEM 325 may not be used as a prerequisite for Chemistry 226.
Prerequisite(s): CHEM 124 and (CHEM 136 or CHEM 146)
Restriction(s):
Cannot enroll if Major is Chemistry (Instructional), Microbiology, Biochemistry, Chemistry (ACS Certified), Biological Sciences

CHEM 344 Quantitative Analysis 4 Credit Hours
A survey of theory and practice of volumetric, gravimetric, electrometric and colorimetric analysis. Systematic analysis of complex materials. Two hours lecture, eight hours laboratory. (F).
Prerequisite(s): CHEM 136 or CHEM 146
Corequisite(s): CHEM 344L

CHEM 348 Environmental Chemistry 3 Credit Hours
Description of the concepts, principles, practices, and current problems in the chemistry of natural waters, the soil, and the atmosphere. Three hours lecture. (AY).
Prerequisite(s): CHEM 344 and (CHEM 225 or CHEM 325)

CHEM 349 Environmental Chem Laboratory 1 Credit Hour
Collection and analysis of air, water, soil, and organisms for pollutants such as noxious gases, heavy metals, and trace organics. EPA-approved methods are emphasized. Four hours laboratory. (AY).
Prerequisite(s): CHEM 348* or ESCI 348*

CHEM 352 Introduction to Toxicology 3 Credit Hours
An introduction to the principles of toxicology with an emphasis on environmental toxicology. Major topics include toxic agents, toxicological mechanisms, and use of toxicological reference literature. Discussion of chemical carcinogenesis, genetic toxicology, immunotoxicology, teratology, and toxic responses of the skin, eyes and nervous system. Three hours lecture. (AY).
Prerequisite(s): CHEM 225

CHEM 368 Physical Chemistry I 3 Credit Hours
Nature of the gaseous state, chemical thermodynamics, biochemical and chemical equilibria and kinetics. Three hours lecture, one hour discussion. (W).
Prerequisite(s): CHEM 225 and CHEM 344 and MATH 116 and (PHYS 125 or PHYS 150)

CHEM 370 Principles of Biochemistry 3 Credit Hours
A concise but comprehensive survey of various areas of biochemistry designed for non-biochemistry majors. The course follows the standard approach to the subject including a description of cells, their structure and constituent macromolecules (proteins, nucleic acids, carbohydrates and lipids), enzymology, bioenergetics, intermediary metabolism and gene regulation. Students cannot take both BCHM 370 and 470 or 471 for any combination of concentration, cognate or minor requirement. Three hours lecture. (F).
Prerequisite(s): BIOL 140 and CHEM 226

CHEM 390 Current Topics in Chemistry 1 to 3 Credit Hours
A course in special topics current to the field of chemistry. Topics and format for the course may vary. See current Schedule of Classes. One to three hours seminar. Permission of instructor. (OC).

CHEM 397 Current Topics in Chemistry 3 Credit Hours
A course for non-science majors which focuses on the interaction of chemistry and society. Sufficient chemical knowledge will be introduced so that the issues can be discussed and competing statements evaluated. Topics covered will include air and water pollution, fuels, designing drugs, etc. (OC).

CHEM 403 Inorganic Chemistry II 3 Credit Hours
A study of coordination and organometallic compounds through the use of current theories. The structure, reactivity, and descriptive chemistry of transition metal complexes will be examined. Three hours lecture. (W).
Prerequisite(s): CHEM 303 and (CHEM 368* or CHEM 468)

CHEM 426 Advanced Organic Chemistry 3 Credit Hours
Spectral analysis, structure determination, reaction mechanisms, synthesis, stereochemistry, and other selected topics are discussed. Three hours lecture. (AY).
Prerequisite(s): CHEM 226 and CHEM 227

CHEM 430 Bioinorganic Chemistry 3 Credit Hours
This course examines the roles that metals play in biological systems, including the chemical principles that make metal ions well-suited for roles in protein structure, in redox catalysis and in acid base chemistry. The physical and experimental techniques that are applied to explore the structure and function of metals in natural systems will be introduced using case studies from the primary scientific literature in the field.
BCHM 370 or its equivalent are strongly recommended but not required.
Prerequisite(s): CHEM 136 and BIOL 140
CHEM 435  Green Chemistry  3 Credit Hours
An examination of green chemistry principles and methods used to assess and improve chemical processes with respect to environmental impact. Topics include: concepts of green chemistry, waste prevention, catalysis, renewable resources, alternative energy resources, and green technologies.
Prerequisite(s): CHEM 226 or CHEM 325
Restriction(s):
Cannot enroll if Class is Graduate

CHEM 436  Polymer Chemistry  3 Credit Hours
The macromolecular concept is introduced and polymerization mechanisms are discussed. The chemistry and physical properties of representative polymeric materials are presented. Topics include the determination and distribution of molecular weights, polymer morphology, mechanical properties of polymers, relaxation phenomena in polymers, and methods of polymer characterization. Three hours lecture. (AY).
Prerequisite(s): CHEM 226 and (CHEM 368* or CHEM 468)

CHEM 437  Nano-Biotechnology  3 Credit Hours
An introduction to the fundamentals of nanotechnology, nano-fabrication processes and its application in different fields with special attention to the life sciences. This course introduces different tools used in nanotechnology and investigates how one can borrow the idea of self-assembly from nature to design structures at the nanometer scale. The course also focuses on different contemporary application areas of nanotechnology like biosensor development, cancer research and drug delivery. The research areas of selected companies that are applying nanotechnology to develop new products will also be explored. This course showcases the interchange of ideas between chemistry, materials science and engineering in solving complex biological problems.
Prerequisite(s): (CHEM 136 or CHEM 146) and (PHYS 126 or PHYS 151) and BIOL 140
Restriction(s):
Can enroll if Class is Junior or Senior

CHEM 447  Instrumental Methods of Analysis  0 or 4 Credit Hours
A study of the theory, operation, and application of instrumental methods of chemical analysis including optical, magnetic, electrochemical, and separation techniques. Two hours lecture, eight hours laboratory. (W).
Prerequisite(s): CHEM 368* or CHEM 468

CHEM 450  Adv Org Syn & Character Lab  1 Credit Hour
Concepts and techniques from previous laboratory courses as well as advanced techniques are applied to synthesis and characterization of organic compounds. Spectroscopic and chromatographic data collection and interpretation are critical to success in the course. Formal writing and data presentation is emphasized. Oral presentation and a poster presentation is required. Crossover experiments with CHEM 452 are likely. Four hours laboratory. (W).
Prerequisite(s): CHEM 227 and CHEM 226 and CHEM 447 and CHEM 468
Corequisite(s): CHEM 452

CHEM 452  Adv Inorg Synth & Char Lab  1 Credit Hour
Concepts and techniques from previous laboratory courses as well as advanced techniques are applied to the synthesis and characterization of inorganic compounds. The ability to collect and interpret spectroscopic data is an important aspect of the course. Technical writing and data presentation is emphasized. Oral presentation and a poster presentation is required. Crossover experiments with CHEM 450 are likely, Four hours laboratory. (W)
Prerequisite(s): CHEM 226 and CHEM 227 and CHEM 136 and CHEM 447 and CHEM 403 and CHEM 481
Corequisite(s): CHEM 450

CHEM 459  Physical Chemistry II  3 Credit Hours
Nature of the liquid state, simple mixtures, heterogeneous equilibria; quantum theory, atomic and molecular structure, spectroscopy; statistical thermodynamics. Three hours lecture, one hour discussion. (F).
Prerequisite(s): CHEM 368

CHEM 470  Biochemistry I  3 Credit Hours
Life processes from a chemical viewpoint: structure/function relationships of biomolecules, with emphasis on proteins, enzyme kinetics, and mechanisms of action. Three hours lecture. (F).
Prerequisite(s): BIOL 140 and BIOL 130 and CHEM 226

CHEM 471  Biochemistry II  3 Credit Hours
Intermediary metabolism, bioenergetics, energy transformation, metabolic interrelationships, biochemical regulation, highly structured subcellular biochemical systems. Three hours lecture. (W).
Prerequisite(s): BCHM 470 or CHEM 470 or BIOL 470

CHEM 472  Biochemistry Laboratory I  1 Credit Hour
The techniques of preparative and analytical biochemistry. Preparation and characterization of proteins and nucleic acids. Physical and chemical properties of proteins and nucleic acids. Four hours laboratory. CHEM 344 Recommended. (F).
Prerequisite(s): (BIOL 470* or BCHM 470* or CHEM 470*) and CHEM 227

CHEM 473  Biochemistry Laboratory II  1 Credit Hour
The techniques of preparative and analytical biochemistry. Preparation and characterization of lipids and carbohydrates. Methods in metabolism. Four hours laboratory. (W).
Prerequisite(s): (BCHM 471* or BIOL 471* or CHEM 471*) and (BCHM 472* or BIOL 472* or CHEM 472*)
Corequisite(s):

CHEM 481  Physicochemical Measurements  2 Credit Hours
Laboratory work including the determination of molecular weights, measurements of properties of pure liquids and solutions; studies of phase equilibria, thermochemical measurements, and analysis of atomic and molecular spectra. Eight hours laboratory. (W).
Prerequisite(s): CHEM 469*

CHEM 490  Topics in Chemistry  1 to 3 Credit Hours
Examination of problems and issues in selected areas of chemistry. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. One to three hours lecture. (YR).
Prerequisite(s): CHEM 226
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

CHEM 490D  Topics in Chemistry  3 Credit Hours
Topic: Bioinorganic Chemistry. Introduces the roles metals play in biological systems. Explores chemical principles that make metals particularly well suited for these roles. Introduces physical and experimental techniques used to explore the structure and function of metals in natural systems. Explores case studies from the literature to synthesize results of various experiments to develop a final understanding of the systems. Students will not receive credit for both CHEM 490D and 590B.
Prerequisite(s): CHEM 226 and BIOL 140
**CHEM 493**  
**Presentations in Chemistry**  
1 Credit Hour  
Employment or graduate studies in chemistry involve integration of experiences and knowledge from one’s undergraduate courses. This course is designed to help prepare students for their professional endeavors beyond UM-Dearborn. Students will submit a proposal for a senior project, present the completed project in an appropriate forum, and submit a written report on the project. Students will assemble and present a professional portfolio, and complete an exit interview. The experimental work on the project may be done in an advanced laboratory course or an independent study. (F, W).

**Restriction(s):**  
Can enroll if Class is Senior

**CHEM 495**  
**Off-Campus Research Participation**  
1 to 3 Credit Hours  
Participation in ongoing experimental research at an off-campus laboratory. Arrangements made between the research laboratory, the student and the chemistry concentration advisor. No more than six hours combined from CHEM 495, 498, and 499 may be credited toward the 120 hours required for a degree. Four to twelve hours laboratory. Permission of concentration advisor. (F,W,S).

**CHEM 497**  
**Seminar in Chemistry**  
1 Credit Hour  
Weekly seminars on topics of current chemical interest presented by faculty members, guest lecturers or students. The subject will vary from term to term. The course may be elected up to three times. One hour seminar. (W).

**Restriction(s):**  
Can enroll if Class is Junior or Senior or Graduate  
Cannot enroll if Major is Chemistry (Instructional), Chemistry (ACS Certified)

**CHEM 498**  
**Readings in Chemistry**  
1 to 3 Credit Hours  
Library research in a specific area of chemistry performed under the guidance of a faculty member. No more than six hours combined from CHEM 495, 498 and 499 may be credited toward the 120 hours required for a degree. Four to twelve hours of readings. Permission of instructor. (F,W,S).

**CHEM 499**  
**Laboratory Research in Chemistry**  
1 to 3 Credit Hours  
Directed laboratory research performed under the guidance of a faculty member. No more than six hours combined from CHEM 495, 498 and 499 may be credited toward the 120 hours required for a degree. Four to twelve hours laboratory. Permission of instructor. (F,W,S).

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

---

**Child Life (CLS)**

**CLS 400**  
**Death, Dying, Grief: Working with Children, Adolescents, and Families**  
Full Title: Death, Dying, Grief: Working with Children, Adolescents, and Families. This course focuses on working with children, adolescents, and families experiencing dying, death, and grief. The course emphasizes the role of families, culture, and healthcare settings, as well as the social meanings of dying and death, development preconceptions, and the impact of culture, religion, and ethnicity. Specific attention is given to grief reactions in children, the application of developmental level in response to loss, role of human services professionals in clinical and non-clinical settings, as well as the tasks of grief. Strategies and tools relating to communicating with bereaved children, as well as the potential impact on academic, behavioral, and emotional development are addressed. Students will explore and develop familiarity with strategies and tools such as legacy building, memento creation, and the identification and utilization of resources that promote coping skills in relation to death or impending death. (F,W,S).

**Restriction(s):**  
Can enroll if Class is Senior

**CLS 401**  
**Hospitalized Child**  
3 Credit Hours  
This Hospitalized Child course is a requirement for those who would like to sit for Child Life Professional Certification Examination and become Certified Child Life Specialist. The course is taught by a Certified Child Life Specialist and focuses on children in the health care environment. Topics of study include: 1. Child Life documents, 2. Scope of practice, 3. Impact of illness, injury and health care on patients and families, 4. Family-centered care, 5. Therapeutic play and 6. Preparation. (W)

**Restriction(s):**  
Can enroll if Class is Junior or Senior

**CLS 402**  
**Child Life Internship**  
3 Credit Hours  
This internship provides students the opportunity to apply classroom learning, observe a Child Life professional and gain hands-on experience in a clinical Child Life setting. This course provides an opportunity to gain experience and practice in applying Child Life skills in an appropriate medical setting while observing Certified Child Life Specialists. In addition to the time spent in the setting, students participate in class activities to enhance understanding, and further develop professional application of knowledge and skills in service to children and families. (F,W,S)

**Other Content**

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Civic Engagement (CIVE)

CIVE 333  Service-Learning Practicum  1 Credit Hour
CIVE 333 is a one credit course that links an academic service-learning project to a relevant three or four credit course (not an independent study course) in which the student is or was recently enrolled. Students complete at least 30 hours of pre-approved, unpaid service hours. Students reflect upon their experience and its current and future impact through the writing of reflection papers, other brief writing assignments, and a final project. A student may repeat CIVE 333 up to three times with different linked courses.

Restriction(s):
Can enroll if College is Business or Engineering and Computer Science or Arts, Sciences, and Letters

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Communication (COMM)

COMM 220  Intro to Media & Culture  3 Credit Hours
Full Course Title: Introduction to Media and Culture: Course focuses on the role of media as cultural institutions that both maintain and challenge power structures. Includes critical analyses of media such as television, music, film, internet, and print publications, as well as emerging technologies. Course examines media as being shaped by but also shaping cultural, economic, legal, political and other aspects of society. Considers the role of media in a democracy, as crucial forums for the deliberation of pressing issues, and as key sites for the creation of meaning.

Prerequisite(s): COMP 106 or COMP 220 or CPAS with a score of 40 or COMP 270 or COMP 280

COMM 260  Public Relations Principles  3 Credit Hours
Explores how public relations, as an area of communications management and production, can contribute to an organization’s success. Provides a comprehensive introduction to the field of public relations, including: history and contemporary professional status of the public relations practitioner; role of public relations as a management discipline; major areas of public relations work, including media relations, public affairs, issues management, lobbying, organizational relations, development; techniques of public relations production - planning and presentation - with attention to the uses of specific tools available to practitioners, i.e., news releases, brochures, multimedia, Internet communications, special events. (YR).

Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280

COMM 290  Communications Practicum  3 Credit Hours
COMM 290 (Practicum) provides introductory instruction and practice in a number of practical communications skills, with the field and focus changing each time the course is offered. (AY).

Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280

COMM 300  Communication Research Methods  3 Credit Hours
Gives detailed view of landmark research studies in the field. Acquaints students with logic of research inquiry, design and analysis, including questions of validity, reliability, causation, etc. Imparts basics of various research methods used in the communication field, such as survey interviews, depth interviews, focus groups, content analysis, and rhetorical analysis. Students design and conduct at least one study in communication, individually or in groups. (F,W).

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMM 306  Comparat. American Identities  3 Credit Hours
This course will confront and complicate the following key questions: what does it mean to be an American? What is American culture? Participants in this course will respond to the questions central to the American Studies field by reading and discussing historical, sociological, literary, artistic, material culture, political, economic, and other sources. Students will use this interdisciplinary study to examine the multiple identities of Americans - as determined by factors such as gender, race, class, ethnicity, and religion. While emphasizing the diversity of American culture, participants will consider some core values and ideas uniting America both in historical and contemporary society. Students will be invited to seek out and share fresh narratives of the American experience.

Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280

Restriction(s):
Can enroll if Level is Undergraduate

COMM 317  Case Studies in Tech Writing  3 Credit Hours
COMM 317 offers both practical and conceptual studies in technical writing and is open to non-technical as well as technical students. The course offers in-depth treatment of the communication problems and various document designs common to technical writing professionals. Instructional format includes lectures and discussions based on case material derived from actual events, followed up by preparation of written documents. Topics include document design, language barriers, and the role of the technical documents in product liability. (F,W,S).

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 with a score of 40 or COMP 280

Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

COMM 340  Professional Communication  3 Credit Hours
Course covers essential skills of professional written and oral communication within the organization; the purpose, process, and problems of professional communication; the influence of organizational structure; audience analysis; the writing and editing of reports (formal and informal, including memo reports) and of professional correspondence; the preparation of graphics; and the planning and delivery of oral presentations. May count toward Communications minor. (F,W,S).

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

Restriction(s):
Can enroll if Class is Junior or Senior or Graduate
COMM 360  Social Media for PR  3 Credit Hours
This course explores the emerging social media technologies and studies their application in contemporary PR practice. It examines the nature and role of social media in organizations and explores technologies including blogs, Microblogs, collaboration tools, podcasts, viral video, social bookmarking, mobile platforms, and other evolving technologies.
Prerequisite(s): COMM 260
Restriction(s):
Cannot enroll if Class is Freshman

COMM 364  Writing for Civic Literacy  3 Credit Hours
In Writing for Civic Literacy, students will study how politicians, the media and critical citizens use language to engage with the broader community. Students themselves will learn to use language to become more active, well-informed citizens. They will study rhetorical awareness, audience analysis and persuasive writing techniques and put those lessons to use in community settings. They will perform community service at agencies of their choosing and use those experiences as objects of analysis, researching the social context in which those agencies operate and writing analytically about the agencies. Further, students will synthesize classroom lessons and real-world experience by executing writing tasks for and with the agencies (these tasks might include editorials for the local press, informational webpages and fundraising materials).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMM 365  Health Communication  3 Credit Hours
Provides skills necessary for creating, interpreting, and critically evaluating messages about issues related to health and illness and encouraging active participation in healthcare. Examines theory and research regarding messages related to physical, mental, and social well-being from interpersonal, organizational, and mass communication approaches. (W, YR)
Restriction(s):
Can enroll if Class is Junior or Senior

COMM 366  Public Comm and Culture Stdies  3 Credit Hours
This gateway course provides the theoretical and methodological foundation to embark on the study of three key interrelated spheres of communication: Public and Organizational Culture, Public Advocacy and Democratic Culture, and Intercultural Communication and Global Culture. Students will have the opportunity to examine salient societal issues within each of the major areas, and explore connections between the different areas. Through a variety of class exercises and both individual and collaborative projects, the course will help students to acquire an analytical and practical "toolkit" enabling them to function effectively as communicators in culturally diverse organizations and civic contexts.

COMM 360  Social Media for PR  3 Credit Hours
This course explores the emerging social media technologies and studies their application in contemporary PR practice. It examines the nature and role of social media in organizations and explores technologies including blogs, Microblogs, collaboration tools, podcasts, viral video, social bookmarking, mobile platforms, and other evolving technologies.
Prerequisite(s): COMM 260
Restriction(s):
Cannot enroll if Class is Freshman

COMM 364  Writing for Civic Literacy  3 Credit Hours
In Writing for Civic Literacy, students will study how politicians, the media and critical citizens use language to engage with the broader community. Students themselves will learn to use language to become more active, well-informed citizens. They will study rhetorical awareness, audience analysis and persuasive writing techniques and put those lessons to use in community settings. They will perform community service at agencies of their choosing and use those experiences as objects of analysis, researching the social context in which those agencies operate and writing analytically about the agencies. Further, students will synthesize classroom lessons and real-world experience by executing writing tasks for and with the agencies (these tasks might include editorials for the local press, informational webpages and fundraising materials).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMM 366  Public Comm and Culture Stdies  3 Credit Hours
This gateway course provides the theoretical and methodological foundation to embark on the study of three key interrelated spheres of communication: Public and Organizational Culture, Public Advocacy and Democratic Culture, and Intercultural Communication and Global Culture. Students will have the opportunity to examine salient societal issues within each of the major areas, and explore connections between the different areas. Through a variety of class exercises and both individual and collaborative projects, the course will help students to acquire an analytical and practical "toolkit" enabling them to function effectively as communicators in culturally diverse organizations and civic contexts.

COMM 360  Social Media for PR  3 Credit Hours
This course explores the emerging social media technologies and studies their application in contemporary PR practice. It examines the nature and role of social media in organizations and explores technologies including blogs, Microblogs, collaboration tools, podcasts, viral video, social bookmarking, mobile platforms, and other evolving technologies.
Prerequisite(s): COMM 260
Restriction(s):
Cannot enroll if Class is Freshman

COMM 364  Writing for Civic Literacy  3 Credit Hours
In Writing for Civic Literacy, students will study how politicians, the media and critical citizens use language to engage with the broader community. Students themselves will learn to use language to become more active, well-informed citizens. They will study rhetorical awareness, audience analysis and persuasive writing techniques and put those lessons to use in community settings. They will perform community service at agencies of their choosing and use those experiences as objects of analysis, researching the social context in which those agencies operate and writing analytically about the agencies. Further, students will synthesize classroom lessons and real-world experience by executing writing tasks for and with the agencies (these tasks might include editorials for the local press, informational webpages and fundraising materials).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMM 366  Public Comm and Culture Stdies  3 Credit Hours
This gateway course provides the theoretical and methodological foundation to embark on the study of three key interrelated spheres of communication: Public and Organizational Culture, Public Advocacy and Democratic Culture, and Intercultural Communication and Global Culture. Students will have the opportunity to examine salient societal issues within each of the major areas, and explore connections between the different areas. Through a variety of class exercises and both individual and collaborative projects, the course will help students to acquire an analytical and practical "toolkit" enabling them to function effectively as communicators in culturally diverse organizations and civic contexts.
COMM 422 Language and Popular Culture 3 Credit Hours
This course provides an overview of popular culture theories and communication models along with research methods. It offers an accessible, in-depth presentation of popular culture including music, film, television, magazines, comics, animation, and advertising in the US and the beyond. The main focus of the course is to highlight the functions of language, particularly, dialects, accents, and foreign languages, in producing and consuming local and global pop culture texts.
Restriction(s):
Can enroll if Class is Junior or Senior
Comm 430 International Communications 3 Credit Hours
Course examines the relationship between globalization and communication from various vantage points such as cultural imperialism, global media flows, and hybridity theory. Students use these theoretical approaches to understand how people in particular locations experience, adapt, resist and modify globally circulating aspects of media, popular culture, news and information. Through critical responses to readings, class exercises, individual and team projects, students also explore how global pressures and changes influence the way people understand and project their identities, buy and sell communication as a commodity, negotiate borders, and create social change.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Class is Junior or Senior
Comm 442 20th Century Public Argument 3 Credit Hours
This class is a survey of American public address in the 20th Century. Students will examine and critically analyze several of the most significant speeches and rhetorical movements of the last one hundred years. Through lectures, discussions, and analysis of speeches and other artifacts, we will focus on the relationship between rhetoric and history, and how theories of rhetorical action help us appreciate the role of discourse in the effective functioning of a democratic system. Students will learn to utilize several critical perspectives as a means of understanding both historical and contemporary political discourse. (W).
Prerequisite(s): SPEE 101
Comm 450 Principle of Organization Comm 3 Credit Hours
Course examines how communication networks function in organizations. Purpose: to provide an organizational context and conceptual framework for the practice of professional writing and speaking skills. Writing projects include a research report, a case study, and several shorter papers, practical and analytical, on assigned topics. Students cannot receive credit for both COMM 450 and COMM 550. (OC).
Prerequisite(s): COMM 340 or COMM 360 or COMM 440
Restriction(s):
Can enroll if Class is Junior or Senior
Comm 455 Gender and Media Studies 3 Credit Hours
The course will focus on several feminist approaches used in understanding the media and attempting to create social change through the media. The role of media in the definition and reproduction of gender-based hierarchies and in the renegotiation of gender boundaries will both be explored. To this end, both mainstream and women's media will be examined. The course will take a multicultural and international perspective, incorporating concerns of class, race, ethnicity, and nation as these intersect with the study of gender and media. Mainstream and alternative media will be analyzed through readings, films, case studies, in-class collaborative exercises and longer term projects. News, entertainment, and advertising genres will be examined in a variety of media such as the printed press, television, video, film, and the Internet. (W).
Prerequisite(s): WGST 275 or WGST 303 or ANTH 275 or PSYC 275 or SOC 275 or ANTH 303 or PSYC 303 or SOC 303 or HUM 275 or HUM 303 or WST 275
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Comm 460 Public Relations Campaigns 3 Credit Hours
Focuses on strategies and tactics involved in planning and implementing a public relations campaign. Extends and refines skills acquired in earlier, prerequisite course work by incorporating management, production, and writing within a four-stage model for planning and action. This model provides a framework for role-playing, case study work, and projects done for evaluation by public relations professionals at local firms. The semester's portfolio of finished communications and "mock-ups" - including planning materials, news releases, brochures, newsletters, Internet communications, video and audio scripts - should demonstrate command of entry-level, professional abilities as a public relations campaign manager and producer. (YR).
Prerequisite(s): COMM 260 and (COMM 360 or COMM 440)
Comm 464 Contemporary Rhetorical Theory 3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners and related developments in linguistics, philosophy, psychology, communication, and composition and rhetoric. Students may not receive credit for both COMM 464 and COMM 564.
Prerequisite(s): COMM 201 or COMM 220 or COMM 290 or ENGL 230 or ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250
Restriction(s):
Cannot enroll if Class is Graduate
Comm 466 Arguing Feminism: Rhetoric 3 Credit Hours
An examination of the work of major twentieth century feminists working in rhetoric and related fields. Students examine recurring themes of language, meaning, ethics and ideology, and practice writing strategies which address rhetorical and ethical concerns central to feminist/academic writing. (OC)
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40
Restriction(s):
Cannot enroll if Class is Freshman
COMM 477  Prof Communication Ethics  3 Credit Hours
An examination of professional communication ethics in the
organizational context, focusing on important issues, problems, and
celliates. This course is designed to help students become conscious
of the role of values in a wide range of professional communication
situations; to locate organizational behavior in an ethical framework
based on considered definitions, standards, perspectives, and criteria for
evaluation and analysis; to consider individuals as well as organizations
as moral agents in a changing and complex universe; and to analyze
topical cases on emergent issues in communication ethics. Some sample
topics: ethics in decision-making and conflict-resolution; privacy and
confidentiality; sexual harassment; whistleblowing; the "engineering"
of consent; corporate image and ethos; issues in documentation,
record-keeping, and technology; "issues management" and corporate
resposibility; groupthink; obedience and personal responsibility;
employee socialization. Students cannot receive credit for both
COMM 477 and COMM 577. (OC).
Prerequisite(s):
Can enroll if Class is Junior or Senior

COMM 481  Gender and Globalization  3 Credit Hours
Mass media, politics, and academia are full of references to globalization,
and a future "world without borders." This interdisciplinary course
considers the implication of globalization for women's lives, gender
relations, and feminism. Topics covered include the global factory, cross-
cultural consumption, human rights, global communications, economic
restructuring, nationalism, and environmental challenges. Rather than
survey international women's movements, this course explores how
globalization reformulates identities and locations and the political
possibilities they create. (AY).
Prerequisite(s): ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or
WGST 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Graduate
Can enroll if College is Arts, Sciences, and Letters

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Comparative Literature (COML)

COML 221  Great Books I: Ancient World  3 Credit Hours
Introduction to masterpieces of Western world literature from the ancient
world. Readings include the Bible, Iliad, Odyssey, Greek drama, and
Roman authors. (YR).

COML 222  Great Books II  3 Credit Hours
Introduction to masterpieces of Western world literature from the Middle
Ages and Renaissance. Readings include Dante, Chaucer, Wolfram,
Cervantes, Shakespeare, Moliere, and Racine. (YR).

COML 223  Great Books III: Modern Era  3 Credit Hours
Introduction to masterpieces of Western world literature from the Modern
Era. Readings include Swift, Voltaire, Rousseau, English romantic poets,
fiction and drama of the 19th and 20th century. (YR).
COML 301 Literary Criticism 3 Credit Hours
This course introduces literary criticism and theory from Aristotle to the present, focusing on the changing concept of literature's nature and function. Lectures, readings, and discussion cover such critics as Aristotle, Dryden, Pope, Johnson, Wordsworth, Coleridge, Arnold, T. E. Hulme, I. A. Richards, T. S. Eliot, and such movements as New Criticism, Phenomenology, Reader-Response, Archetypal Criticism, psychological approaches to literature, New Historicism, Marxism, Feminism, and Deconstruction. (OC).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 280 or COMP 270 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239).

COML 340 Modern European Short Fiction 3 Credit Hours
A careful reading of between 10 and 15 short novels (in English translation) with particular attention being paid to the manner in which their plots and characters express contemporary cultural issues. Such works as Dostoyevsky's Notes from Underground, Conrad's Heart of Darkness, and Unamuno's Abel Sanchez will be included.
Prerequisite(s): ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200.

COML 341 Mod Eur Poetry in Translation 3 Credit Hours
Movements and genres of modern European poetry, from the Symbolists to the present. Included will be such poets as D'Annunzio, Cavafy, Rilke, Blok, Mayakovksy, Valery, Eliard, Pavesse, Seferis, Akhmatova, Mandestram, Marinetti, Trakl, Mistrale, Vallejo, Morgenstern, Apollinaire, Loren, Transtromer, Brodsky, Milosz, and others in translation. (OC).
Prerequisite(s): ENGL 231.

COML 342 Myth and Motif 3 Credit Hours
A study of archetypal figures and thematic motifs. Their recurrent appearance in different literary periods and genres and their lineage will be examined in order to increase understanding of the works themselves and of the ages which produced them. A selection will be made from classical myth, Biblical narrative, and historical sources. Thus the figures may vary from Oedipus and Cain to Faust and Don Juan. Motifs or story patterns may include such devices as the spiritual quest, the journey into Hell, or the patriaric prophecy.
Prerequisite(s): ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200.

COML 344 Modern Literature: the Novel 3 Credit Hours
A careful examination of five or six significant modern novels in translation, with particular emphasis on their influence on the development of the novel, and their reflection of contemporary cultural issues. The works of such authors as Flaubert, Dostoyevsky, Tolstoy, Gide, Joyce, and Mann will be included.

COML 345 Modern Literature: Drama 3 Credit Hours
A careful reading of selected plays from Ibsen to the contemporary theater, designed to develop appreciation of the plays and their relationships to movements to modern drama, theater, background, social forces and trends of thought.

COML 347 Clas Lit in Engl Translation 3 Credit Hours
A study of masterworks of ancient Greek and Roman literature with special attention to the development of epic, tragedy, comedy, and lyric poetry. Authors studied will include Homer, Virgil, Aeschylus, Sophocles, Euripides, Aristophanes, Terence, and Plautus.
Prerequisite(s): ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200.
Restriction(s):
Can enroll if Class is Junior.

COML 348 Masterworks of Renaissance 3 Credit Hours
An introduction to the study of the major works of ancient Greek and Roman literature. The course, intended primarily for freshmen, will introduce students to the major works of Greek and Roman literature, focusing on the major themes of these works and their influence on later literature. The course will also introduce students to the major authors of these works and their contributions to the development of Western literature.
Prerequisite(s): ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239.
Restriction(s):
Can enroll if Class is Freshman.

COML 355 Urban Voices: France and Italy 3 Credit Hours
This course is an interdisciplinary approach to the concepts of urban development and literary, visual and cultural responses to the process of urbanization mainly in Rome and Paris. The readings will illustrate how the city shaped the writers' creativity, as well as how their works interpret urbanization.
Restriction(s):
Can enroll if Class is Freshman.

COML 375 The Hero in Literature 3 Credit Hours
Reflections on myth, history, and literature, based on analyses of literary texts. The individual hero may change from term to term. The course, for example, might center on the transition from Faust to anti-Faust. In this instance, some of the writers or works might include: The Faustbook, Marlow's Doctor Faustus, Goethe's Faust, Byron's Manfred, a Faust opera, Thomas Mann's Doktor Faustus, Gunter Grass' The Tin Drum. All reading in English translation. (OC).

COML 390 Topics in Comparative Lit 3 Credit Hours
Examination of problems and issues in selected areas of comparative literature. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

COML 399 Independent Studies 1 to 3 Credit Hours
Readings or analytical assignments in Comparative Literature in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor.

COML 404 Medieval Mystical Writers 3 Credit Hours
A study of the genre of mystical writing as it was developed and practiced throughout the Middle Ages and in 14th century England particularly. Attention will be given to the historical, religious, and cultural contexts that enabled and were created by mystical texts. In addition, the course will explore how traditional and contemporary trends in the fields of religious and literary studies can be brought to bear on the genre of mystical writing. (OC)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40) or COMP 280 or ENGL 230 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239).

COML 433 Writing Women in Renaissance 3 Credit Hours
This course will be taught in English, and will focus on the influence of Italian literary models for the construction of female literary types as well as female voices in France and Italy from 1300 to about 1600. Italian authors studied include three very influential Florentines, Dante, Petrarch and Boccaccio, as well as Castiglione and Ariosto. We will read women poets, patrons, prostitutes and queens from Italy and France such as Veronica Gambara, Isabella di Morra, Vittoria Colonna, Christine de Pizan, Louise Labe, and Marguerite de Navarre. At last issue will be women's roles and women's images in city and court culture during the early modern period, and the interaction of their writings with the literary canons of Italy and France. (OC).

COML 399 Independent Studies 1 to 3 Credit Hours
Readings or analytical assignments in Comparative Literature in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor.

COML 404 Medieval Mystical Writers 3 Credit Hours
A study of the genre of mystical writing as it was developed and practiced throughout the Middle Ages and in 14th century England particularly. Attention will be given to the historical, religious, and cultural contexts that enabled and were created by mystical texts. In addition, the course will explore how traditional and contemporary trends in the fields of religious and literary studies can be brought to bear on the genre of mystical writing. (OC)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40) or COMP 280 or ENGL 230 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239).

COML 433 Writing Women in Renaissance 3 Credit Hours
This course will be taught in English, and will focus on the influence of Italian literary models for the construction of female literary types as well as female voices in France and Italy from 1300 to about 1600. Italian authors studied include three very influential Florentines, Dante, Petrarch and Boccaccio, as well as Castiglione and Ariosto. We will read women poets, patrons, prostitutes and queens from Italy and France such as Veronica Gambara, Isabella di Morra, Vittoria Colonna, Christine de Pizan, Louise Labe, and Marguerite de Navarre. At last issue will be women's roles and women's images in city and court culture during the early modern period, and the interaction of their writings with the literary canons of Italy and France. (OC).

COML 399 Independent Studies 1 to 3 Credit Hours
Readings or analytical assignments in Comparative Literature in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor.
COML 455  This American Life  3 Credit Hours
The course "This American Life: Immigrant Literature and the American Dream" is a literary and cultural analysis of the literature of immigration. The readings are from works of fiction in a variety of genres, and are written by American and non-American prize-winning authors. Their common denominator is the pursuit of the American Dream and its many multifaceted aspects. The themes explored include: assimilation, acculturation, diversity, language, subculture, intertextuality, nostalgia, belonging, and double identity. Student wishing to take this course for graduate credit should sign up for COML 555. Students cannot receive credit for both COML 455 and COML 555.
Restriction(s):
Cannot enroll if Class is Freshman or Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Computer & Computational Math (CCM)

CCM 150  Computer Science I  4 Credit Hours
An introduction to structured computer programming covering problem formulation, algorithm development, the C++ programming language, program testing and debugging, capabilities and elements of computer organization, and object-oriented software methodologies.
Prerequisite(s): MATH 115*
Corequisite(s): CCM 150L

CCM 172  Computing Environ for Math  3 Credit Hours
This course covers introductory programming techniques for Mathematics majors. Students will learn to program in sage and python. Topics include data types, variables and assignments, decisions, loops, functions, recursion, arrays and objects. Programming assignments focus on problems that are mathematical in nature, giving students an opportunity to use simulations to understand and verify familiar mathematical results. This course, or CIS/CCM 150, satisfies the programming requirement for the Mathematics concentration.
Prerequisite(s): MATH 115
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters

CCM 305  The Theory of Computation  3 Credit Hours
An introduction to the foundations of computer science including the theory of computability, Turing machines, automata, and formal languages.
Prerequisite(s): CIS 175 and (CIS 200 or IMSE 200)

CCM 315  Applied Combinatorics  3 Credit Hours
An introduction to methods and applications of enumerative and configural combinatorics. Students study several elegant and useful techniques for counting and/or generating the elements in large and unwieldy finite sets. Students also study topics in graph theory that are applicable to real world problems. Topics include basic counting principles, the principle of inclusion-exclusion, generating functions and recurrence relations. Topics from graph theory include graph models, paths, circuits, cycles, and connectedness; additional topics include the theory and applications of planarity, coloring, directed graphs, networks and network flows.
Prerequisite(s): MATH 300)(MATH 200 or MATH 227) and (MATH 217

CCM 372  Computing with Mathematica  3 Credit Hours
The course explores a variety of topics from different areas of undergraduate mathematics including calculus, matrix algebra, number theory, geometry, and discrete mathematics. Students learn to design customized Mathematica functions to solve specific problems in these areas using the symbolic, computational, graphics, and programming tools provided within Mathematica.
Prerequisite(s): MATH 217 or MATH 227

CCM 390  Topics in Computational Math  1 to 3 Credit Hours
A course designed to offer selected topics in different areas of applied mathematics. The specific topics will be announced together with the prerequisites for each separate offering. Course may be repeated when the topics covered differ.

CCM 399  Independent Studies  1 to 3 Credit Hours
Readings or analytical assignments in Computers and Computational Mathematics in accordance with the needs and interests of those enrolled and agreed upon by the student and advising instructor.

CCM 404  Dynamical Systems  3 Credit Hours
The aim of this course is to survey the standard types of differential equations. This includes systems of differential equations, and partial differential equations, including for each type, a discussion of the basic theory, examples of applications, and classical techniques of solutions with remarks about their numerical aspects. Also included are autonomous and periodic solutions, phase space, stability, perturbation techniques and Method of Liapunov. (AY).
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)

CCM 451  Computer Graphics  3 Credit Hours
Basic geometrical concepts: graphics output primitives, two-dimensional transformations, windowing and clipping, three-dimensional viewing, visible surface detection methods, graphical user interfaces.
Prerequisite(s): (CCM 350 or CIS 350 or IMSE 350) or (ECE 370 and MATH 276) and (MATH 215 or MATH 205) and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate

CCM 458  Introduction to Wavelets  3 Credit Hours
This course will introduce the students to theory and application of wavelets using linear algebra. Topics will include the discrete Fourier transform, the fast Fourier transform, linear transformations, orthogonal decomposition, discrete wavelet analysis, the filter bank, Haar Wavelet family, Daubechies's Wavelet family, and applications. Students cannot receive credit for both MATH 458 and MATH 558. (OC)
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Computer & Information Science (CIS)

CIS 112 Computer Literacy/Info Mgmt 3 Credit Hours
This is a microcomputer literacy course with primary emphasis on the application tools of the word processor, spreadsheets, and database. Additional topics of computer terms, systems, and use in society are included. The course is intended for undergraduates in the College of Arts, Sciences, and Letters. No previous experience with computers is expected. (YR).

CIS 125 Survey of Computer Science 3 Credit Hours
A survey of computer science topics, including history of computing, office productivity software, the internet, HTML, JavaScript, web design, algorithms, assemblers and compilers, gates and logic design, models of computation, artificial intelligence and expert systems, computing ethics, privacy issues, intellectual property. No credit for CIS majors. (F,W,S).

CIS 150 Computer Science I 4 Credit Hours
This course provides a foundation for further studies in computer and information science and emphasizes a structured approach to problem solving and algorithm development. Topics include principles of program design, coding, debugging, testing, and documentation. Students are introduced to the Unified Modeling Language for requirements analysis using use-cases and activity diagrams, an object oriented programming language, and the fundamentals of computer hardware, system software, and components. The course will consist of three lecture hours and one two-hour laboratory.

Prerequisite(s): MATH 115* or MATH 113* or MPLS with a score of 116
Corequisite(s): CIS 150L

CIS 1501 CS I for Data Scientists 4 Credit Hours
This course provides a foundation for further studies in computer and information science and emphasizes a structured approach to problem solving and algorithm development using a high-level language more suited to data science applications. Topics include principles of program design, coding, debugging, testing, and documentation. Students are introduced to the Unified Modeling Language for requirements analysis using use-cases and activity diagrams, an object-oriented programming language for data science applications, and the fundamentals of computer hardware, system software, and components. The course will consist of three lecture hours and one two-hour laboratory. The labs will cover various data science applications. (F,W,S)

Prerequisite(s): MATH 115* or MATH 113* or MPLS with a score of 116

CIS 167 Proxy Server 3 Credit Hours
This course will cover installation, configuration, and troubleshooting Microsoft Proxy Server, methods of controlling internet access, enhancement to performance monitor, and creation of a plan for integrating Proxy Server in an existing environment. (F,W)

Prerequisite(s): CIS 162
Restriction(s):

Can enroll if Program is

CIS 200 Computer Science II 4 Credit Hours
This course presents techniques for the design, writing, testing, and debugging of medium-sized programs, and an introduction to data structures (stacks, queues, linked lists) using an object-oriented programming language. Topics covered include pointers, templates, and inheritance. The principles of UML modeling are continued. This course will consist of three lecture hours and one two-hour laboratory.

Prerequisite(s): (MATH 115 or MPLS with a score of 116) and (CIS 150 or IMSE 150 or CCM 150)
Corequisite(s): CIS 200L

CIS 2001 CS II for Data Scientists 4 Credit Hours
This course presents techniques for the design, writing, testing, and debugging of medium-sized programs, and an introduction to data structures (stacks, queues, linked lists) using an object-oriented programming language for data science applications. Topics covered include pointers, templates, and inheritance. The principles of UML modeling are continued. This course will consist of three lecture hours and one two-hour laboratory. The labs will cover various data science applications. (F, W, S)

Prerequisite(s): CIS 1501 and MATH 115 or MATH 113 or MPLS with a score of 116

CIS 205 Comp Programming for Engineers 3 Credit Hours
Full Course Title: Computer Programming for Engineers-Intermediate topics in computer programming: arrays, files, structured data types, pointers, functions. Overview of digital computer hardware and system software components: machine architecture, operating systems, computer networks, data security, and performance evaluation. No credit for CIS majors.

Prerequisite(s): ENGR 100 or (MATH 105 or MPLS with a score of 113)

CIS 275 Discrete Structures I 4 Credit Hours
This course introduces students to various topics in discrete mathematics, such as set theory, mathematical logic, trees, and graph theory. Applications to relational databases, modeling reactive systems and program verification are also discussed. (F,W,S)

Prerequisite(s): MATH 115 (MATH 115 or MPLS with a score of 116) and CIS 200*
Corequisite(s):
CIS 280  Prac Aspects of Computer Sec  3 Credit Hours
This course provides a practical introduction to a broad range of computer security topics. Covered topics include: practical computer security principles to help empower students to secure their own connections to cyberspace, firewalls, malware, and intrusion detection; cryptography basics and its applications; mobile devices and related security issues; network technologies and their vulnerabilities.
Prerequisite(s): CIS 200

CIS 285  Software Engineering Tools  3 Credit Hours
This course will cover various CASE tools, such as UML modeling and code generation tools, configuration management tools, defect management tools, an integrated development environment for coding and debugging, unit and testing tools, and build tools. Students will learn these tools in a laboratory environment. This course will be comprised of one lecture hour and one two-hour laboratory. (F,W)
Prerequisite(s): CIS 200*

CIS 290  Topic in Programming Languages  2 Credit Hours
One significant programming language is covered in depth. The particular language changes from term to term. The language chosen might be Ada, C, MODULA 2, USP, PROLOG, or SMALLTALK.
Prerequisite(s): CIS 200

CIS 290A  Topic in Programming Languages  2 Credit Hours
Prerequisite(s): CIS 200

CIS 294  Programming with Visual Basic  3 Credit Hours
An introduction to create professional-looking applications using the graphical user interface of Windows. Students learn how to create graphical objects and controls, write event driven code that responds to clicking on buttons, work with multiple forms and executable files. (F,S).
Prerequisite(s): CIS 200 or IMSE 200

CIS 296  Java Programming  3 Credit Hours
Course covers Java Programming language, focusing on GUI development, distributed computing and network applications.
Prerequisite(s): CIS 200 or IMSE 200

CIS 297  Intro to C Sharp  3 Credit Hours
This course provides an introduction to the C# programming language and the .NET Framework for the development of Windows game applications. Some discussion of DirectX programming and Xbox game development is also included. (W)
Prerequisite(s): CIS 200

CIS 298  Intro to Python  3 Credit Hours
Full Title: Introduction to Python An introduction to the Python programming language and its various libraries, packages, and toolkits. The focus of this course will be on the development of analytics/data science applications. (W)
Prerequisite(s): CIS 200 or IMSE 200
Restriction(s): Can enroll if Level is Undergraduate

CIS 299  Internship  1 Credit Hour
Student works with an industrial sponsor in the area of CIS. Approval of Internship Coordinator required. (F,W,S).

CIS 306  Discrete Structures II  4 Credit Hours
This course introduces students to further topics in discrete mathematics, including theory of computation, more complexity theory, coding theory, and game theory.
Prerequisite(s): CIS 275

CIS 308  Practicum  3 Credit Hours
This course is an opportunity for students to apply the knowledge gained in their coursework to a practical setting. The specific topics and requirements will vary depending on the partner organizations and their needs.
Prerequisite(s): CIS 200 or IMSE 200
Restriction(s): Can enroll if Level is Undergraduate

CIS 310  Computer Org and Assembly Lang  4 Credit Hours
The architecture of computer systems and associated software. Topics include digital logic circuits, computer interfacing, interrupt systems, input/output systems, memory systems, assemblers and assembly language programming, and computer networks. (F,W,S).
Prerequisite(s): (MATH 115 or MPLS with a score of 116) and (CIS 200 or IMSE 200) and CIS 275

CIS 3200  Data Science II  4 Credit Hours
This course provides an overview of what Big Data is and explores its characteristics. It introduces the fundamental technologies, platforms, and methods that enable Big Data analysis, and covers how to acquire, store, and analyze very large amounts of information to complete Big Data analysis tasks. Topics include MapReduce, similarity search, mining real-time data streams, link analysis, clustering, recommender systems, social network graph mining, and large scale data mining tasks. (W)
Prerequisite(s): (CIS 2001 or CIS 200) and ECE 3100

CIS 350  Data Struc and Algorithm Anlys  4 Credit Hours
This course focuses on data design and algorithm design. Data design topics include object-oriented discussions of hashing, advanced tree structures, graphs, and sets. Algorithm design topics include the greedy, divide-and-conquer, dynamic programming, backtracking and branch-and-bound techniques. A significant discussion of algorithm complexity theory, including time and space trade-offs and elementary computability theory, is included. (F,W,S)
Prerequisite(s): (MATH 115 and (CIS 200 or MPLS with a score of 116) or IMSE 200) and CIS 275

CIS 3501  Data Struc and Algorithm Anlys for SE  4 Credit Hours
This course focuses on data design and algorithm design for software engineers. Data design topics include object-oriented discussions of hashing, advanced tree structures, graphs, and sets. Algorithm design topics include the greedy, divide-and-conquer, dynamic programming, backtracking and branch-and-bound techniques. A significant discussion of algorithm complexity theory, including time and space trade-offs and elementary computability theory, is included. (F,W,S)
Prerequisite(s): (CIS 200 or IMSE 200) and CIS 275 and CIS 285* and MATH 115

CIS 375  Software Engineering I  4 Credit Hours
This course presents an in-depth treatment of the following software engineering topics: software engineering paradigms, requirements, specification, functional design, object-oriented design, user interface design, software verification and validation, and the maintenance and management of software engineering artifacts, as well as an introductory discussion of software reliability. Various phases of the software engineering process will be modeled using UML. (F,W)
Prerequisite(s): (CIS 350 or CIS 3501 or IMSE 350) or (ECE 370 and MATH 276) or (ECE 370 and ECE 276) and (COMP 270 or COMP 106 or COMP 220 or CPAS with a score of 40)

CIS 376  Software Engineering II  4 Credit Hours
This course continues the formal development of the software engineering material begun in CIS 375. Topics covered include personal software process, team software process, formal methods, security, software architecture, software quality assurance, software fault tolerance, the evaluation of the effectiveness of human computer interaction and software reliability. (W,S)
Prerequisite(s): CIS 375
CIS 381  Industrial Robots  4 Credit Hours
The course introduces students in engineering and computer science to fundamentals of robotics technology, programming and their applications in industrial environment. The emphasis will be on robotics anatomy and configurations, robotics kinematics, end effectors, use of sensors in robotics, robotics programming, design of robot workcell, robotics applications to production problems, cost justifications and robotics safety, rather than on the extensive theory of robotics. Three-hour lecture and three-hour laboratory per week.
Prerequisite(s):
algorithms.
backtracking, lower bounds, NP-completeness and approximation
dynamic programming, greedy algorithms, branch and bound,
include asymptotic analysis, amortized analysis, divide-and-conquer,
Prerequisite(s):
CIS 350
Restriction(s):
Can enroll if Class is Junior or Senior
CIS 387  Digital Forensics I  4 Credit Hours
This course takes a detailed, hands-on approach to study the procedures and techniques used to identify, extract, validate, document and preserve electronic evidence. Students completing this course will be familiar with the core computer science theory and practical skills necessary to perform basic computer forensic investigations, understand the role of technology in investigating computer-based crime, and be prepared to deal with investigative bodies at a basic level.
Prerequisite(s):
CIS 200 or ECE 270 and (CIS 310* or ECE 370* or ECE 372*)
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate
CIS 390  Topics in Computer Science  1 to 3 Credit Hours
A course designed to offer selected topics in an area of computer science. The specific topics will be announced (together with special prerequisites) each time offered. Students must elect different topics to take both CIS 390 and CIS 391. (OC).
Prerequisite(s):
CIS 350 or CIS 3501 or IMSE 350 or (ECE 370 and ECE 276) or (ECE 370 and MATH 276)
CIS 391  Topics in Computer Science II  1 to 3 Credit Hours
A course designed to offer selected topics in an area of computer science. The specific topics will be announced (together with special prerequisites) each time offered. Students must elect different topics to take both CIS 390 and CIS 391. (OC).
Prerequisite(s):
CIS 350 or CIS 3501 or IMSE 350 or (ECE 370 and ECE 276) or (ECE 370 and MATH 276)
CIS 399  Internship  1 Credit Hour
Student works with industrial sponsor in the area of CIS. Permission of Internship Coordinator required. (F,W,S).
CIS 400  Programming Languages  4 Credit Hours
Systematic study of programming languages with regard to their implementation, structures, and use. Languages are compared with regard to their various data types, data structures, operations, control structures, programming environments, and ease of use in solving various programming problems. (F,W).
Prerequisite(s):
CIS 350 or IMSE 350 or CIS 3501) or (ECE 370 and MATH 276) or (ECE 370 and ECE 276)
CIS 405  Algorithm Analysis & Design  3 Credit Hours
This course investigates how to design efficient algorithms. Topics include asymptotic analysis, amortized analysis, divide-and-conquer, dynamic programming, greedy algorithms, branch and bound, backtracking, lower bounds, NP-completeness and approximation algorithms.
Prerequisite(s):
CIS 350
CIS 421  Database Mgmt Systems  4 Credit Hours
An introduction to database systems, concepts, and techniques. Topics covered include: database environments, ER modeling, relational data model, object-oriented databases, database design theory and methodology, database languages, query processing and optimization, concurrency control, database recovery, and database security.
Prerequisite(s):
CIS 350 or CIS 3501 or IMSE 351 or (ECE 370 and MATH 276)
CIS 422  Massive Data Management  4 Credit Hours
An introduction to database systems, concepts, and techniques for big data. The course discusses classical relational technologies, and then covers the more current approaches to managing massive amounts of data for analytics purposes. Topics include database environments, database design, the relational data model, normalization, SQL, query processing, parallel databases and query processing, in-database analytics, data warehousing, key-value and column stores, NoSQL and NewSQL approaches for managing massive data. (F)
Prerequisite(s):
(CIS 2001 or CIS 200) and CIS 3200
CIS 423  Dec Support and Exp Systems  3 Credit Hours
The application of artificial intelligence to building decision support and expert systems for management and other applications. Topics include fundamentals of artificial intelligence, knowledge representation and knowledge processing, tools for building expert systems (logic programming, expert shells), decision support system design (modeling and simulation), expert system design (knowledge engineering, learning). (F).
Prerequisite(s):
CIS 421
CIS 425  Information Systems  4 Credit Hours
This course is an introduction to the principles of information systems analysis and design and their role in business organizations. Topics include Systems Development Life Cycle (SDLC), using CASE (Computer Aided Software Engineering) tools for systems design and analysis, prototyping, Rapid Application Development (RAD), extreme programming, quality assurance through software engineering, and object-oriented systems design and analysis using UML (Unified Modeling Language). Participation in a major design project is a requirement for this course.
Prerequisite(s):
CIS 375 and CIS 421*
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
CIS 4261  Inf Sys Analysis & Design I  4 Credit Hours
An introduction to the principles of information systems analysis and design and their role in business organizations. Topics include information systems strategy and planning, ethical issues in information systems, system modeling, clean-room system engineering, domain ontologies, UML, Enterprise Unified Process, e-business, and supply-chain management, deployment and support. Participation in a major design project is a requirement for this course. (F).
Prerequisite(s):
CIS 375 and CIS 421*
CIS 4262  Inf Sys Analysis & Design II  4 Credit Hours
This course is a continuation of CIS 4261 and provides students with breadth and depth in the information systems area. Topics include web-based information systems, e-commerce, computer-supported collaborative work, workflow systems, data mining, and data warehousing. Participation in a major design project is a requirement of this course. (W).
Prerequisite(s):
CIS 4261
CIS 427  Comp Networks and Dis Process  4 Credit Hours
Study of the management aspects of computing networks and distributed systems. Topics include network architectures (ISO/OSI, TCP/IP, ATM), communication hardware (transmission media, network adaptors, switches), encoding, framing, error detection and correction, reliable transmission, data link control and LAN technology, internetworking, routing/congestion control, network design/management.
Prerequisite(s): (CIS 350 or CIS 3501 or IMSE 351) or (ECE 370 or (ECE 370 and ECE 276) and MATH 276) and IMSE 317

CIS 428  High Speed Network Admin  3 Credit Hours
The course requires students to setup and manage their own computer network in the lab. Topics include: overview of file servers, LAN configurations and protocols, server hardware (CPU, hard drives, memory), server clients, server installation, domains, user accounts, groups, rights, directories, permissions, applications, printers, other OS, monitoring, maintenance, high speed switching, ATM, video, routers, firewalls. (YR).
Prerequisite(s): CIS 427

CIS 435  Web Technology  3 Credit Hours
This course deals with the study of technologies used to design and implement multimedia web sites. Topics include web servers, HTML, CGI, scripting languages, Java applets, back-end database connectivity, web security, multimedia, XML. (F,W).
Prerequisite(s): CIS 553 CIS 375*
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

CIS 436  Mobile App Des & Impl  3 Credit Hours
This course introduces students to the development of software applications for programmable mobile and wireless intelligent handheld devises. Topics covered include the different mobile development platforms, best practices in mobile user interaction design, software quality assurance in mobile environment, security and privacy issues, and context-aware computing. Students will participate in a final project.
Prerequisite(s): CIS 375*
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters or Engineering and Computer Science

CIS 437  Advanced Networking  3 Credit Hours
Topics include an overview of the internet, congestion control, quality of service, internet multicasting, multimedia networking, mobile and wireless networks, vehicular networks, overlay networks, peer-to-peer networks, internet management (SNMP), and internet applications (web-HTTP and email-SMTP).
Prerequisite(s): CIS 427
Restriction(s):
Cannot enroll if Class is Business

CIS 447  Intro Computr & Ntwrk Security  3 Credit Hours
This course will provide a broad-spectrum introduction to the fundamental principles of computer and network security. Topic will include security policies, models and mechanisms for confidentiality, integrity and availability, access control, authorization, cryptography and applications, threats and vulnerabilities in computer networks, key management, firewalls and security services in computer networks.
Prerequisite(s): CIS 450*
Restriction(s):
Cannot enroll if College is Business or Education, Health, and Human Services

CIS 450  Operating Systems  3 or 4 Credit Hours
Introduction to computer operating systems. Process control, threads, concurrency, memory management, virtual memory, uniprocessor, multiprocessor, and real-time scheduling, I/O management, disk scheduling, file management, distributed processing, client/server, clusters, distributed process management, security. (F,W).
Prerequisite(s): (CIS 310 and (CIS 350 or CIS 3501 or IMSE 350) or (ECE 370 and MATH 276) or (ECE 370 and IMSE 317* and ECE 276)

CIS 451  Computer Graphics  3 Credit Hours
Basic geometrical concepts: graphics output primitives, two-dimensional transformations, windowing and clipping, three-dimensional viewing, visible surface detection methods, and graphical user interfaces. (F).
Prerequisite(s): MATH 227) and CIS 350 (MATH 217 or CIS 350 or IMSE 350 or (ECE 370 and MATH 276) or (ECE 370 and IMSE 317* and ECE 276)

CIS 452  Inf Vis & Multimedia Gaming  3 Credit Hours
This course introduces basic techniques for digital animation, computer and video games, and web multimedia. Topics include the process of creating animated video clips from start to finish, including story creation, storyboarding, modeling, animation, and post-production; several key techniques for video editing and motion generation, including keyframe, motion capture editing, collision detection, particle systems, physical simulation, and real-time rendering; techniques for web animation and multimedia; and internet gaming.
Prerequisite(s): CIS 451 or CIS 487
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

CIS 456  Windows Programming  3 Credit Hours
This course covers the core tenets of the Microsoft Foundation Class (MFC) or similar package and Windows programming. The emphasis will be on the relationship between Windows Operating System and MFC. Windows OS has three major components: user, graphics device interface (GDI), and kernel. User is a module that controls input devices, GDI is a module that services output devices, and kernel controls internal resources. These three components are called the API and communicate with MFC. Projects will be assigned to simulate the major components of API using MFC. (VR)
Prerequisite(s): CIS 350

CIS 467  Digital Forensics II  4 Credit Hours
This course is a continuation of Digital Forensics I and will focus on Internet Forensics. Students will examine in-depth concepts in Internet evidence collection and preservation, as well as applications of contemporary commercial forensic investigative software.
Prerequisite(s): (CIS 427* or ECE 471*) and (CIS 387 or ECE 387)
Restriction(s):
Cannot enroll if Class is Freshman
Cannot enroll if College is Business
CIS 474  Compiler Design  3 Credit Hours
Principles of language compilation. Introduction to formal languages. Lexical analysis, top-down and bottom-up parsing, code generation and optimization. Error handling and symbol table management. Run-time storage management. Programming language design. Introduction to compiler-writing tools such as LEX and YACC. (F, W).
Prerequisite(s): CIS 350 or CIS 3501 or IMSE 350 or (ECE 370 and MATH 276)

CIS 475  Software Engineering Seminar  3 Credit Hours
The focus of this course is on management issues related to modern software engineering practice. Students read and discuss papers written by master software engineering professionals. Seminar topics discussed include: management of software engineering processes, software measurement, software engineering ethics, and legal issues related to professional practice. (W, S).
Prerequisite(s): CIS 376

CIS 476  Soft Arch & Design Patterns  3 Credit Hours
This course focuses on design patterns in object-oriented programming. This course begins with an overview of UML and a review of object-oriented programming and then moves on to various structural, behavioral and creational patterns, including: facades, adaptors, bridges, factories and the template method. Analysis of case studies will also be discussed. Using various modern software tools, students will apply various design patterns to real-world software design problems to gain complete practical understanding. (F, W)
Prerequisite(s): CIS 375
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 479  Intro to Artificial Intel  3 Credit Hours
This course introduces students to basic concepts and methods of artificial intelligence from a computer science perspective. Emphasis of the course will be on the selection of data representations and algorithms useful in the design and implementation of intelligent systems. The course will contain an overview of one AI language and some discussion of important applications of artificial intelligence methodology. (S).
Prerequisite(s): CIS 350 or CIS 3501 or IMSE 350 or (ECE 370 and MATH 276) or (ECE 370 and ECE 276)

CIS 481  Computational Learning  3 Credit Hours
This course covers basic computational aspects of learning to perform a task and improve with experience. Topics include learning frameworks and problem formulations; standard models, methods, computational tools, algorithms and modern techniques; and methodologies to evaluate learning ability and to automatically select optimal models. The main focus is on computer science (e.g., basic runtime, space and complexity analysis, programming, and empirical evaluations?). Simple applications to areas such as computer vision, natural language processing (NLP), and robotics will also motivate the course material. (W)
Prerequisite(s): CIS 306 and (MATH 217* or MATH 227*) and (IMSE 317* or BENG 364* or MATH 425*)
Restriction(s):
Cannot enroll if College is Graduate or Doctorate

CIS 485  Data Security and Privacy  3 Credit Hours
This course covers basics of data security and privacy techniques, which can facilitate the use of data in a secure and privacy-sensitive way. Topics include security and privacy challenges due to data collection and analytics, technologies and strategies for data security and privacy (access control mechanism, integrity policy, cryptography and encryption, notice and consent, anonymization or de-identification, deletion and non-retention). (W)
Prerequisite(s): CIS 200 or CIS 2001

CIS 487  Computer Game Design & Implem  3 Credit Hours
This course deals with the study of the technology, science and art in the creation of computer games. The focus of the course will be hands-on development of computer games. Students will study a variety of software technologies relevant to computer game design, including programming languages, scripting languages, operating systems, file systems, networks, simulation engines and multi-media design systems. Lecture topics will be taken from several areas of computer science: simulation and modeling, computer graphics, artificial intelligence, real-time processing, game theory, software engineering, human computer interaction, graphic design and game aesthetics. (F).
Prerequisite(s): CIS 375*
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

CIS 488  Computer Game Design II  3 Credit Hours
This course is a continuation of the material studied in CIS 487. The focus of the course will be hands-on development of computer game development tools (e.g. game engines). Students will study a variety of software technologies relevant to computer game design, including: 3D graphics, computer animation, data-driven game design, multiplayer game programming, and game AI. Lecture topics will be taken from several areas of computer science: simulation and modeling, computer graphics, artificial intelligence, game theory, software engineering, human computer interaction and game content development. (W)
Prerequisite(s): CIS 487
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science

CIS 490  Advanced Topics  1 to 3 Credit Hours
This course is intended for seniors and graduate-level students in CIS. For specific topic, consult current semester’s Schedule of Classes. (OC).
Prerequisite(s): CIS 350 or CIS 3501 or IMSE 350 or (ECE 270 and ECE 276) or (ECE 370 and MATH 276)

CIS 491  Research Project I  1 to 4 Credit Hours
Provides the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the semester when such a course is to be elected, an interested student must submit to the CIS chair and one CIS faculty member a written request for permission to elect a research course on the appropriate form available in the CIS Office. The request will include a description of the proposed research project. The CIS chair will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit. Grades will be granted on a Pass/Fail (S/E) basis exclusively. (F,W,S).
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is CIS/Information Systems

CIS 492  Research Project II  1 to 4 Credit Hours
This course is a second registration for a research project in CIS. (F,W,S).
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is CIS/Information Systems

CIS 493  Independent Study I  1 to 4 Credit Hours
Readings or analytical assignments in accordance with the needs and interests of those enrolled and agreed upon by the student and an instructor, which shall not duplicate a formal course offering. Permission of instructor required. (F,W,S).
CIS 494  Independent Study II  1 to 4 Credit Hours
This course is a second registration for an independent study in CIS. Permission of instructor required. (F,W,S).

CIS 495  Design Seminar  4 Credit Hours
Students participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice in computer science. (F,W,S).
Prerequisite(s): CIS 375
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

CIS 4951  Design Seminar I  2 Credit Hours
Students participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice. (F,W,S)
Prerequisite(s): CIS 375
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 4952  Design Seminar II  2 Credit Hours
Students continue to participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice. (F,W,S)
Prerequisite(s): CIS 4951
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 4951 Design Seminar I  2 Credit Hours
Students participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice. (F,W,S)
Prerequisite(s): CIS 375
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 4952 Design Seminar II  2 Credit Hours
Students continue to participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice. (F,W,S)
Prerequisite(s): CIS 4951
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 496  Design Seminar for SE  4 Credit Hours
Software engineering students participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice in software engineering.
Prerequisite(s): CIS 376 and CIS 476

CIS 4961 Design Seminar for SE I  2 Credit Hours
Software engineering students participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice in software engineering. (F,W,S)
Prerequisite(s): CIS 376
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 4962 Design Seminar for SE II  2 Credit Hours
Software engineering students continue to participate in the design and implementation of a major software project. Seminar topics discussed include: computing ethics and professional practice in software engineering.
Prerequisite(s): CIS 4961 and CIS 476*
Restriction(s):
Can enroll if College is Engineering and Computer Science

CIS 4971 Cap Sem for Data Sci I  2 Credit Hours
Data science students participate in the design and implementation of a major data science project. Seminar topics discussed include: computing ethics and professional practice in data science. (F, W, S)
Prerequisite(s): CIS 3200 and (STAT 326 or STAT 425)
Restriction(s):
Can enroll if Class is Senior

CIS 4972 Cap Proj for Data Sci II  2 Credit Hours
Data science students continue to participate in the design and implementation of a major data science project. Seminar topics discussed include: computing ethics and professional practice in data science. (F, W, S)
Prerequisite(s): CIS 4971 and STAT 430*
Restriction(s):
Can enroll if Class is Senior

CIS 499 Internship  1 Credit Hour
Student works with industrial sponsor in area of CIS. Approval of Internship Coordinator required. (F,W,S).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Criminal Justice Studies (CRJ)

CRJ 200 Intro to Criminal Justice  3 Credit Hours
This course provides an introduction to issues of crime and neighborhood disorder as well as society’s responses to these problems. We will examine the nature and causes of crime, criminal law, constitutional safeguards, and the organization and operation of the criminal justice system including the police, courts, and corrections. The history of the criminal justice system, terminology and career opportunities will also be discussed.

CRJ 300 Political Analysis  3 Credit Hours
Introduction to research design, data collection and analysis, sampling, and statistics for social scientists. Should be elected as soon as possible after the declaration of major. POL 101 or equivalent recommended. (F, W).
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 302 Theory of the Law  3 Credit Hours
A comprehensive introduction to the theoretical foundations and the political functions of law, with special emphasis on the different moral justifications of law; the relation between law and justice; the relation between law and freedom; due process and fairness in any legal system. This course is designed to have special relevance for those considering law as a career. POL 101 or equivalent recommended. (OC).
Restriction(s):
Can enroll if Level is Undergraduate
CRJ 307  Forensic Anthropology  3 Credit Hours
Forensic anthropology has recently seen a lot of exposure through popular television shows like CSI and Bones. Have you ever wondered how much of what you were seeing was real? Do the dead really "talk" about their lives and how they died? This course is designed as an introductory course for students interested in demystifying and getting to know the real forensic anthropology. Forensic anthropology is a specialized sub-field of biological anthropology that applies many of the methods of biological anthropology to the discovery, excavation, and identification of human remains in a medicolegal context. In this class we learn about the human skeleton and explore the key methods that are used in the identification of individuals, such as age-at-death estimation, sex determination, stature, ancestry, and personal identification. We also deal with assessment of the different types of trauma, and whether or not we can tell the cause and manner of death. The broader ethical roles and responsibilities of forensic anthropologists are also discussed, including discussions of how we determine race/ancestry, as well as ethical responsibilities we have during the investigation of human rights abuses, disasters and criminal inquiries. (F)
Restriction(s):
Cannot enroll if Class is Freshman

CRJ 308  Moral and Political Dilemmas  3 Credit Hours
This course focuses on the tensions and relations between personal morality and political action by examining the moral aspect of contemporary policy issues such as the right to life, environmental policy, and discrimination. POL 101 or equivalent recommended. (YR).
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

CRJ 309  Introduction to Law & Society  3 Credit Hours
Law and Society is a field of study that examines the interaction between the legal system and society from the perspective of the social sciences and humanities. This course focuses on core components of the legal system including courts, lawmaking bodies, regulatory administration, alternative dispute resolution systems, and the legal profession. Throughout the course, students develop the ability to examine the legal system and its relationship to equality, social change, and public benefits using social science evidence. (YR)
Restriction(s):
Cannot enroll if Class is Freshman

CRJ 316  The American Judicial Process  3 Credit Hours
An analysis of American legal institutions, processes, doctrines, and their relationship to the formulation of public policy and the solution of social problems. POL 101 or equivalent recommended. (AY).
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 322  Psychology of Prejudice  3 Credit Hours
A consideration of ethnic (including racial, sexual, and religious) prejudice from the psychological point of view, focusing on the mind of both the oppressor and the oppressed. (AY).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 323  Urban Politics  3 Credit Hours
A survey of the political process in urban areas, giving special attention to the changing roles of cities in American politics. POL 100 or equivalent recommended. (YR).
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 325  Psych of Interpersonal Relation  3 Credit Hours
This course presents an overview of theory and research conducted by social psychologists that has been aimed at understanding interactions between individuals. Topics include an exploration of the research process that is used to investigate interpersonal relationships, the processes underlying social perception, friendship, liking, love, close relationships, aggression and violence in interpersonal relationships. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 335  Philosophy of Law  3 Credit Hours
An examination of some of the important philosophical issues relevant to law and legal theory, including legal punishment, legal responsibility, and the relationship between law and morality. Both classical and contemporary writings will be studied. Prerequisite: a previous philosophy course or permission of instructor. (AY).
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 350  Poverty and Inequality  3 Credit Hours
In a middle class-oriented culture, the poor experience many problems and are also considered deviant, which tend to make poverty self-perpetuating. This stratum will be explored with respect to life styles, life changes, contributing factors, characterisics, individual and social consequences, and evaluation of attempted solutions. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 362  Women, Politics, and the Law  3 Credit Hours
An examination of the political behavior of women in American politics. Included is an analysis of the legal and legislative demands of American women. (AY).
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters

CRJ 363  Crim Justice Syst and Policy  3 Credit Hours
The structure and processes of criminal justice administration in America, including analysis of current issues in police behavior, courts, and corrections. POL 101 or equivalent recommended. (AY).
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 369  US Civil Rights Movement  3 Credit Hours
A survey of race relations and civil rights activity from the late 19th century to the present. The principal focus, however, is on the period since World War II, especially on the mass-based Southern civil rights movement (1955-1965) and the various policy debates and initiatives of the past thirty years, most notably affirmative action and busing. We also examine critiques of non-violence and integrationism. (AY).
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 382  Social Psychology  3 Credit Hours
An introductory study of interrelationships of the functioning of social systems and the behavior and attitudes of individuals. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or SOC 201 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate
CRJ 390  Topics in Criminal Justice  3 Credit Hours
Examination of problems and issues in selected areas of criminal justice. Title as listed in the Schedule of Classes will change according to content. Course may be repeated when specific topics differ. (OC)

CRJ 403  Minority Groups  3 Credit Hours
The status of racial and ethnic minorities in the United States with particular reference to the social dynamics involved with regard to majority-minority relations. Topics of study include inequality, segregation, pluralism, the nature and causes of prejudice and discrimination and the impact that such patterns have upon American life. (F, W).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 407  Psychology of Adolescence  3 Credit Hours
Considers adolescence as an interaction of rapid biological and social change. Examines the theoretical and empirical literature in some detail. Prerequisite or permission of instructor. (F, W).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 408  Police and the Community  3 Credit Hours
This course examines the diverse roles of the public police and how to achieve effective community policing. After reviewing the evolution of community policing, this course focuses on understanding police mission and culture, involving the community, proactive policing, implementing community policing, communicating with a diverse population, the challenge of gangs, forming partnerships with the media, and building partnerships in the community. (F, W)
Prerequisite(s): CRJ 200

CRJ 409  Intel and Homeland Security  3 Credit Hours
Full Title: Intelligence and Homeland Security This course will provide an in-depth examination of the principles that guide the collection, analysis, and sharing of intelligence in the United States and how these principles impact homeland security. Topics will include the US Intelligence Community (CIA, FBI, military intelligence), the National Criminal Intelligence Sharing plan, the National Intelligence Strategy, and the recent emphasis placed on Intelligence-Led Policing. Emphasis will also be placed on the increased role that local and state law enforcement agencies as well as private sector entities play in contributing to the assessment of threats to homeland security. (F,W,S)
Prerequisite(s): CRJ 200

CRJ 410  Quantitative Research  4 Credit Hours
An introduction to methods of data collection and analysis. Also discussion of research design and the philosophy of social science. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 412  Men and Masculinities  3 Credit Hours
This course addresses the question, "What is a man?" in various historical, cross-cultural, and contemporary contexts. A major focus on the social and cultural factors that underlie the shape and conceptions of manhood and masculinity in America as well as in a variety of societies around the globe. (AY)
Prerequisite(s): SOC 200 or SOC 201 or ANTH 101 or WST 275 or WGST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

CRJ 413  American Constitutional Law  3 Credit Hours
A major theme of this course is the development of the constitution, especially focusing on the themes of judicial review: judicial self-restraint and judicial activism; the expansion of executive and legislative powers; and the rise of "substantive due process of law." POL 101 or equivalent recommended. (AY).
Prerequisite(s): POL 101
Restriction(s):

CRJ 415  Restorative Justice  3 Credit Hours
This course explores the practice of restorative justice as it has been engaged in historical and contemporary criminal justice contexts. Topics addressed include the principles and philosophies underlying restorative justice, differences between retributive and restorative models, victim-offender dialogue, and offender reintegration. Students will be asked to think critically about restorative and retributive systems and to apply these concepts to develop their own approach to restorative justice.
Prerequisite(s): CRJ 200
Restriction(s):
Can enroll if Class is Junior or Senior
CRJ 416  Criminal Law  3 Credit Hours
A survey of the major judicial, executive, and legislative decisions in the field of criminal law. (AY)
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 417  Crimmigration  3 Credit Hours
Full Title: Crimmigration: Intersections of Immigration and Criminal Justice This course explores the intersection(s) of the criminal justice and immigration systems with special attention to race, class, and gender. It covers the evolution of American immigration policy and its application, the criminalization of immigrants, immigrant offending and victimization, the policing of immigrant communities, and the immigrant experience in the United States.
Prerequisite(s): CRJ 200 or CRJ 468 or CRJ 473 or SOC 200 or SOC 201

CRJ 418  CJ Research Methods  4 Credit Hours
Full Title: Criminal Research Methods This course provides an introduction to methods of data collection and analysis, as well as a discussion of research design and the philosophy of social science, within the context of the field of Criminology and Criminal Justice. Attention is given to quantitative, qualitative, and mixed methodologies.
Prerequisite(s): CRJ 200 and CRJ 468
Restriction(s):
Can enroll if Class is Junior or Senior

CRJ 421  Group Processes  3 Credit Hours
Topics treated include group cohesiveness, "group think," the social structure of groups, emotional factors in group life, leadership, and development of groups. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 423  American Social Classes  3 Credit Hours
Stratification of American communities and society: a review of the findings of major studies and an introduction to methodology. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 425  Lab in Social Psychology  4 Credit Hours
A broad introduction to research methods in basic and applied social psychology. Students will receive training in construction, implementation, and interpretation of scientific procedures used in the study of social psychology. Topics include: questionnaire construction, experimental design, and various multivariate analytic techniques. (AY).
Prerequisite(s): PSYC 381*
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 435  Urban Sociology  3 Credit Hours
A descriptive study of the form and development of the urban community with respect to demographic structure, spatial and temporal patterns, and functional organization. The relationship of city and hinterland. Social planning and its problems in the urban community. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 440  Abnormal Psychology  3 Credit Hours
An introduction to the field of psychopathology, the study of mental disorders. Includes exposure to a number of historical and theoretical perspectives, each with their own theories, methodologies, and treatment approaches. Disorders covered will include: anxiety and mood disorders, personality disorders, schizophrenia, sexual disorders, and psychosomatic disorders. (F, W).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 443  Gender Roles  3 Credit Hours
This course will investigate the development of gender roles in childhood and adolescence due to either innate physiological differences or sociological patterning, the effect of gender roles upon male-female relationships within our society, and the possibility of transcending sociological gender roles in alternate modes of living. (F, W).
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or SOC 201 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 445  Contemporary Ethical Theory  3 Credit Hours
An intensive study of a topic in recent ethical theory. Topics will vary with each offering. Among the topics: ethics and law, utilitarianism, virtue theory, theories of justice, morality and emotion, ethics and partiality. (AY).
Prerequisite(s): PHIL 240
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 446  Marriage and Family Problems  3 Credit Hours
Sociological analysis of problems encountered within the institution of marriage with particular reference to such issues as choosing a marriage partner, sexual adjustment, occupational involvement, conflict resolution, child rearing, divorce and readjustment. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 447  Family Violence  3 Credit Hours
Sociological analysis of various forms of family violence which occur disproportionately in the lives of girls and women. Topics such as incest, sexual abuse, date rape, wife battering, and elder abuse will be situated within the social and cultural context of contemporary gender relationships. Social and political responses to the phenomena will be examined. Permission of instructor is an optional prerequisite. (YR).
Prerequisite(s): SOC 200 or SOC 201 or SOC 301 or SOC 443 or PSYC 405 or WST 405
Restriction(s):
Can enroll if Level is Undergraduate
CRJ 453  Sociology of Law  3 Credit Hours
Various aspects of the relationship between law and society are explored. After a look at processes of law making, attention is turned to the administration of law. This involves a study of the activities of legislatures, courts, police, and correctional agents. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 455  Immigrant Cultures and Gender  3 Credit Hours
The history and culture of immigration since 1850, including: (1) formation and perseverance of immigrant communities and interethnic boundaries; (2) relations between the homeland and the immigrant; and (3) impact of migration on family life and gender roles. Prerequisite: ANTH 101 and junior or senior standing. (AY).
Prerequisite(s): ANTH 101 or WST 275 or WGST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

CRJ 460  Law & Culture  3 Credit Hours
This course explores the ways in which legal norms, and processes are shaped by the societies in which they are created. Issues discussed may include the role of culture in criminal defense, conflicts between religious and secular law, and how race, gender and ethnicity impact engagement with the law as lawyers and as clients. The class addresses anthropological and sociological theories about the nature of law and disputes, examines related studies of legal structure in non-Western cultures, and considers the uses of sociology and anthropology in studying our own legal system. By examining individual legal institutions in the context of their particular cultural settings, students can begin to make cross-cultural comparisons and contrasts. In doing so, the class confronts the challenge of interpreting and understanding the legal rules and institutions of other cultures while assessing the impact of our own social norms and biases. (W)
Restriction(s):
Can enroll if Class is Junior or Senior

CRJ 461  Cops & Cons: Women in Prison  3 Credit Hours
Course uses contemporary theories of gendered organizations to frame analyses of prison policies and practices in employment and incarceration as they reflect and reproduce gender inequalities. Analyses will be framed within a restorative justice defense, that is, a critique of the current criminal justice system of retributive justice and a paradigm of what a alternative system could be.
Prerequisite(s): SOC 200 or SOC 201 or WST 275 or CRJ 240 or CRJ 300 or WGST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

CRJ 465  Deviant Behavior/Soc Disorganz  3 Credit Hours
General analysis of the concepts of social deviance and social disorganization: factors producing each condition, the effects of social control measures on the course of deviance and disorganization, consequences for the social system, and the relationship between the two concepts. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 466  Drugs, Alcohol, and Society  3 Credit Hours
Analyzes of the sociology of substance use and abuse. Provides a sociological framework for understanding issues and evaluating our nation's responses to the phenomenon of drug use. Drawing on sociocultural and social psychological perspectives, this course systematically examines the social structure, social problems, and social policy aspects of drugs in American society. Prerequisite or permission of instructor. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior

CRJ 467  Drugs, Crime, and Justice  3 Credit Hours
Provides a comprehensive analysis of the current state of research on interactions between crime and drug abuse. Examines drug distribution, organization of drug systems, and mechanisms of social control of drug systems. Analyzes the social problems associated with drugs and crime. The course also focuses on drug-law enforcement and public policy strategies for dealing with drugs and crime. Prerequisite or permission of instructor. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior

CRJ 468  Criminology  3 Credit Hours
Analysis of criminal behavior in relationship to the institutional framework of society. Emphasis upon the more routinized and persistent forms of criminality along with the joint roles played by victims, the criminal, the police, and all other relevant parties. (F,W)
Restriction(s):
Can enroll if Level is Undergraduate

CRJ 469  Juvenile Delinquency  3 Credit Hours
The analysis of juvenile delinquent behavior in relationship to the institutional framework of society. Emphasis on the extent, causes, and methods of juvenile delinquency in the United States. (YR)
Prerequisite(s): SOC 200 or SOC 201

CRJ 470  Current Issues in Crim Justice  3 Credit Hours
Current issues in the field of criminal justice and law enforcement in the U.S. and other countries. Topics include an evaluation of police activities, problems of apprehensions and prosecution, the courts and the correctional system, and the efficacy of the legal structure in its social context. (F,W,S).
Prerequisite(s): CRJ 200

CRJ 471  Comp Crim Justice Systems  3 Credit Hours
Description, analysis, and evaluation of selected criminal justice systems throughout the world. Course focuses on the various systems, theories, structures, methods and functions, including common law systems and socialist law systems. (YR).
Prerequisite(s): CRJ 200

CRJ 472  Correctional Systems  3 Credit Hours
Analysis of the legal, social, and political issues affecting contemporary correctional theory and practice. Topics covered include the history of corrections; the nature of existing institutions; the functions and social structure of correctional institutions; and alternatives to institutional incarceration, probation, and parole. (OC).
Prerequisite(s): CRJ 200
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
CRJ 473  Race, Crime and Justice  3 Credit Hours
This course is an analysis of race and its relation to crime in the criminal justice system. Students will analyze and interpret the perceived connection between race and crime, while exploring the dynamics of race, crime, and justice in the United States. This course is designed to familiarize students with current research and theories of racial discrimination within America’s criminal justice system.
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Cannot enroll if Class is Freshman

CRJ 474  Cyber Crimes  3 Credit Hours
This course is a hands-on approach investigating cyber crimes (e.g. child exploitation, predators, sexual/vice crimes, identity theft, etc.). Students will explore and discuss legal cases involving cyber technology and predatory practices and review applicable evidentiary rules. Students will also analyze the practical and ethical considerations that apply to undercover internet operations, and evidence collection and use to locate and apprehend offenders.
Prerequisite(s): SOC 200

CRJ 475  Digital Evidence  3 Credit Hours
This course is a detailed approach to how computers and networks function, how they can be involved in virtually any type of crime, and how they can be used as a source of evidence. Students will analyze relevant legal issues and specific investigative and forensic processes related to technology. This course examines how deductive criminal profiling, a systemic approach to focusing an investigation and understanding criminal motivations, is utilized to locate and apprehend offenders.
Prerequisite(s): SOC 200

CRJ 476  Inside Out Prison Exchange  4 Credit Hours
This community-based course, taught in a local correctional facility, brings university students and incarcerated students together to study as peers. Together students explore issues of crime and justice, drawing on one another to create a deeper understanding of how these issues affect our lives as individuals and as a society. The course creates a dynamic partnership between UMD and a correctional facility to allow students to question approaches to issues of crime and justice in order to build a safer and more just society for all. The course encourages outside (UMD) students to contextualize and to think deeply about what they have learned about crime and criminals and to help them pursue the work of creating a restorative criminal justice system; it challenges inside students to place their life experiences into larger social contexts and to rekindle their intellectual self-confidence and interest in further education.
Restriction(s):
Can enroll if Class is Junior or Senior

CRJ 478  Criminal Justice Internship  3 to 6 Credit Hours
Provides field experience in social welfare or criminal justice agencies, e.g., for children/adolescents, in residential programs, in abuse remediation, in probation, for chemical dependencies, in victim advocacy, for the elderly, in prisons, for special needs populations, in court services, in medical/public health, in police services, and for families and communities. Supervision by approved field instructors. An internship of 80 hours is required for three (3) credits. Instructor and student will work together to determine appropriate intern placement. Approval of instructor. (F,W).
Prerequisite(s): CRJ 200

CRJ 479  Women's Studies Internship  3 Credit Hours
Provides field experience in social welfare agencies, e.g., for children/adolescents, abuse, chemical dependencies, the elderly, special needs populations, criminal justice/probation, medical/public health, and families and communities. Supervision by approved field instructors. Focus is on analysis of the social context of agency, the clients, and staff. An internship of 80 hours is required for three (3) credits. Prerequisite: WGST 275 and permission of the Women's Studies Director is required. (F, W).
Prerequisite(s): WST 275

CRJ 480  Criminal Justice Theory  3 Credit Hours
Criminal Justice theorists study of formal and informal mechanisms of social control in specific places, such as bars and night clubs, city parks, schools and shopping malls. Students in this course will learn to apply their theories to practical, real life situations to achieve behavioral changes among individuals and groups toward the objective of effective crime control.

CRJ 481  Terrorism & US Natl Security  3 Credit Hours
The United States responded to the events of September 11, 2001 with a series of unprecedented action under the umbrella of homeland security and the ?War on Terror.? This course examines American National security policy by asking a few key questions: What is terrorism and how does it threaten the United States? How has the United States responded to the threat of terrorism over time? What have the consequences of US policy been to date? Finally, how would we balance a desire for security with our desire for civil liberties and ethical action?
Prerequisite(s): CRJ 468

CRJ 482  Legal Ethics  3 Credit Hours
This course will explore the many ethical dilemmas faced by professionals in the legal system. We will pay particular attention to the criminal justice system and to the Rules of Professional Conduct for attorneys. Some of the questions we may address are: How should an attorney consider his/her own ethical beliefs when deciding the appropriate course of action in a case? How should a judge consider his/her own ethical beliefs when making a juvenile justice decision? How should a police officer determine the ethical course of action when the law’s instructions are ambiguous?
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if Level is Undergraduate

CRJ 483  Justice, Crime and Environment  3 Credit Hours
This service-learning course focuses on environmental justice and law. Environmental Justice is defined as the fair treatment of all people with respect to the development, implementation, and enforcement of environmental laws. In the classroom, students learn the theory, history, and enforcement of environmental laws and regulations in Detroit, Michigan, and nationwide. In a required civic engagement project, students apply their substantive knowledge to solve local environmental problems. Through classroom learning and projects with community organizations, students connect law and justice concerns to the United States’ environmental problems.
Restriction(s):
Can enroll if Class is Junior or Senior
The validity of such violence. (W)

and the National Academy of Sciences report on the reliability of forensic
reviewed. Finally, the class will review the impact of DNA exonerations
attorneys and police to juror expectations for scientific evidence will be
evidence or jurors and the so-called “CSI Effect”. The reaction of courts,
their reliability. The class will examine the impact of forensic science
the “junk science” standards and to the most recent information about
CRJ 487  Forensic Science  3 Credit Hours
This class is a study of the increasing use of scientific evidence in
criminal cases, gathered by crime scene investigators (CSI) and/or
later developed in a crime laboratory. After a review of the history and
development of forensic scientific evidence, the class will study the
standards used by courts to prevent the admission of so-called “junk
science” and the emergence of DNA as a new model for forensic science
evidence. Several common forms of scientific evidence, beginning with
dNA, will be studied, including fingerprints, handwriting, hair, bite marks,
ballistics, fire and arson debris, and blood stains. The study also includes
the forensic use of social sciences testimony, including the reliability of
eyewitness testimony and several forms of abuse “syndrome” testimony.
Each of these forms of evidence will be described and then compared to
the “junk science” standards and to the most recent information about
their reliability. The class will examine the impact of forensic science
evidence or jurors and the so-called “CSI Effect”. The reaction of courts,
attorneys and police to juror expectations for scientific evidence will be
reviewed. Finally, the class will review the impact of DNA exonerations
and the National Academy of Sciences report on the reliability of forensic
science evidence and how judges and appeals courts are responding to
those challenges, particularly the current controversies concerning over
the validity of such violence. (W)

CRJ 488  Criminal Procedure  3 Credit Hours
This class is a study of Constitutional law regarding criminal procedure
in the United States. Initially the class reviews the federal and state court
structure relating to criminal prosecutions and the flow of cases through
those systems. The focus is then on the nature of individual rights under
the Constitution, the case law, and the concept of the “exclusionary
rule.” The class then examines specific issues and procedures relating
to arrests, searches, confessions and identifications, and analyzes the
constitutional requirements for each. (W)

CRJ 489  Law, Crime, and Society  3 Credit Hours
This course will incorporate both legal and empirical perspectives to
emphasize the dynamic relationship between law, crime, and society. In
this course, we will focus on the substantive and procedural criminal law
(‘law on the books’) while we simultaneously focus on empirical research
of enforcement, case processing and sentencing in the criminal justice
system (the ‘law in action’). As a result, we will assess the relationship
and differences between what the criminal law says ‘on the books’ and
the criminal justice system ‘in action’.

Restriction(s):
Can enroll if Class is Junior or Senior or Undergraduate

CRJ 490  Topics in Criminal Justice  3 Credit Hours
Examination of problems and issues in selected areas of criminal justice.
Title as listed in Schedule of Classes will change according to the content
of the course. Course may be repeated when specific topics differ.

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

CRJ 494  Pol Sci Internship Seminar  3 or 6 Credit Hours
This is the academic part of the internship. Students must meet with
other interns once a week to analyze political dynamics within their
placements. Students are required to keep journals, prepare papers
and reports, and do other written work. Anyone taking POL 495 or 496
is required to take POL 494. It may not be taken by itself. Repeatable
if topic differs. Only six hours of internship credit is allowable toward
concentration requirement. (F,W,S).

CRJ 497  Washington, D.C. Internship  3 to 6 Credit Hours
Field placements in Washington, D.C. Course is offered only in summer
semester. Primarily for junior or senior political science concentration.

CRJ 498  Directed Studies  1 to 6 Credit Hours
Directed individual study of any subject agreed upon by the student and
the instructor. May not duplicate a formal course offering.

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Decision Sciences (DS)

DS 300  Quantitative Model and Anlys I  3 Credit Hours
To introduce fundamental concepts and methods in data analysis, probability, estimation, and statistical inference for application in management and management science. Topics include: basic probability theory, discrete and continuous random variables and distributions, sampling and data analysis, sampling distributions, estimation, confidence intervals and hypothesis testing, introductory regression analysis and utilization of statistical software packages.  
Prerequisite(s): MATH 104 or MATH 105 or MATH 113 or MATH 115 or MPLS with a score of 115
Restriction(s):
- Can enroll if Class is Sophomore or Junior or Senior

DS 301  Intro Business Statistics  3 Credit Hours
Introductory concepts and methods in data analysis and probability, together with their applications to business. Students will be introduced to the use of Excel to analyze data and communicate data to a business audience through statistical reports. Topics covered are data generation and categorization; visualizing data; numerical descriptive measures; basic probability; random variables (discrete and continuous); and an introduction to sampling methods and sampling distributions. (F,W,S)
Prerequisite(s): (MATH 104 or MATH 105 or MATH 113 or MATH 115 or MPLS with a score of 115) and ITM 120
Restriction(s):
- Cannot enroll if Class is Freshman

DS 302  Advanced Business Statistics  3 Credit Hours
Full Title: Advanced Business Statistics using Excel The continuance of DS301: an introduction to the use of estimation and statistical inference in data analysis using Excel and other appropriate statistical packages, with applications to business. Statistical report writing for a business audience will be emphasized. Topics covered are sampling distributions; confidence interval estimation; hypothesis testing (one-sample tests, two-sample tests, Chi-square test, and analysis of variance); and regression models. (F,W,S)
Prerequisite(s): DS 301

DS 310  Data Mining for Bus Intel  3 Credit Hours
Data Mining offers a suite of analytical techniques to examine large sets of data in order to discover, diagnose, and identify new and valuable information to aid the decision-making process. This course is designed to introduce the core concepts of data mining, its techniques, implementation, benefits and outcomes from this technology. Examples from industries such as retail, marketing, fraud protection, personal security, health care, web and e-commerce will be presented throughout the course to emphasize usage and application of data mining. Among data mining techniques to be discussed in the course are K-means clustering, principal component analysis, factor analysis, linear and logistical regression, neural networks, decision trees, text and web mining. The class format consists of discussion of published articles/cases, presentations by business professionals, class lectures and discussions, and hands-on work with popular data mining software. (F)
Prerequisite(s): DS 300 or STAT 325

DS 350  Quantitative Model and Anlys II  3 Credit Hours
To continue from DS 300, during the first half of the course, the study of the concepts and methods in data analysis and statistical inference, as well as to introduce, in the second half of the course, basic linear optimization methods and models applied in the formulation, quantification, analysis, and solution of management decision problems. Topics include: simple and multiple linear regression, analysis of variance, sampling, correlation, formulation and solution of linear programming problems, transportation and transshipment models, utilization of software packages for statistical analysis and optimization.  
Prerequisite(s): DS 300

DS 425  Optimization Modeling and Anlys  3 Credit Hours
To continue from DS 350, the study of optimization methods and models applied in the formulation, quantification, analysis and solution of management decision problems. Topics include: network analysis (including PERT-CPM), goal and multi-objective linear programming, integer programming, dynamic programming, Markovian decision processes, nonlinear programming. 
Prerequisite(s): DS 350

DS 426  Introduction to Simulation  3 Credit Hours
To introduce the concepts and methods of discrete-event simulation for the modeling and analysis of complex systems. Topics include: basic simulation modeling, modeling complex systems, simulation languages, selection of input probability distributions, random-number generators, generating random variable values, output data analysis for a single system, statistical techniques for comparing alternative systems, validation of simulation models, variance-reduction techniques, experimental design and optimization.  
Prerequisite(s): DS 350

DS 489  Seminar: Decision Sciences  1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members. Permission of College of Business.  
Restriction(s):
- Can enroll if Class is Senior
- Can enroll if College is Business

DS 499  Research: Decision Sciences  1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available from the school office. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit.  
Restriction(s):
- Can enroll if Class is Senior

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Economics (ECON)

ECON 100 Personal Economics & Finance 3 Credit Hours
Students in ECON 100 will acquire the knowledge and tools needed to survive and thrive in the economic realities of the 21st century. Students will become familiar with the Michigan and U.S. economies, and will learn how to apply basic economic concepts to common personal choices, for example how to finance their education. They will also learn how to use economic concepts to critically evaluate economic information presented to them by others.

ECON 201 Prin: Macroeconomics 3 Credit Hours
Introduction to economic reasoning, basic economic concepts and theories used in microeconomics and macroeconomics. Economic techniques including graphing and marginal analysis will also be introduced and applied to practical problems in everyday life. In addition, this course will focus on the way economic concepts can be taught at the elementary and high school level in a way that integrates economics into a broader understanding of Michigan history, government and geography. (F).

ECON 202 Prin: Microeconomics 3 Credit Hours
Together with ECON 201, this course serves to introduce the student to the basic ideas and concepts of modern economic analysis, and applies them to current economic problems, policies and issues. The focus of this course is on microeconomics: income and wealth, employment, and prices at the national level in the United States economy. It is recommended that students take ECON 201 before ECON 202. MATH 105 is highly recommended but not required. (F,W,S).

ECON 205 Business in Japan 3 Credit Hours
How did Japan accomplish its economic success? How are businesses in Japan managed? To answer these questions, this course examines the social context of industries, organization and management of a company, cultural traits which contributed to Japanese-style management, and the historical background of modern Japanese culture. (OC).

ECON 290 Topics in Economics 3 Credit Hours
Examination of problems and issues in selected areas of economics. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

ECON 301 Intermediate Macroeconomics 3 Credit Hours
A systematic study of the determinants of national output, economic growth, inflation, and unemployment. The effects of monetary policy, fiscal policy and other economic factors are analyzed for both the long run and short run. Debates about various approaches to macroeconomics policy are also discussed. (F,W).
Prerequisite(s): ECON 201 and ECON 202 and (MATH 104 or MATH 105 or MATH 113 or MATH 115 or MPLS with a score of 113)

ECON 302 Intermediate Microeconomics 3 Credit Hours
A systematic study of the role of prices in organizing economic activity. The tools necessary for such study will be developed and applied to the analysis of the household, the firm, and the market under varying degrees of competition and monopoly. (F,W).
Prerequisite(s): ECON 201 and ECON 202 and (MATH 104 or MPLS with a score of 113) or MATH 105 or MATH 113 or MATH 115

ECON 305 Economic Statistics 3 Credit Hours
Introduction to the logic and use of statistical analysis, with emphasis on statistical inference. Topics covered include descriptive statistics, probability, estimation, hypothesis testing, and the use of linear regression analysis to study relationships between two variables. (F,W).
Prerequisite(s): ECON 201 and ECON 202 and (MATH 104 or MPLS with a score of 113) or MATH 105

ECON 311 Money and Banking 3 Credit Hours
The structure, workings, and regulation of financial systems, concentrating on bank-like financial institutions. While financial instruments like stocks, bonds, and some derivatives are discussed, the focus is on the economic theory behind financial markets. That is, the study of monetary policy underscores the interaction between the financial system and the economy. (F,W).

ECON 321 Labor in the American Economy 3 Credit Hours
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of wages, unemployment, economic insecurity, the trade union movement, collective bargaining, and labor legislation. (F,W).
Prerequisite(s): ECON 201 and ECON 202

ECON 325 Economics of Pov and Discrm 3 Credit Hours
An analysis of the economic aspects of poverty and discrimination. Emphasis on the theoretical economic causes of poverty and the economic bases for discriminatory behavior, the impact of poverty and discrimination on individuals and society, and the effect of reform policies on the two problems. (AY).
Prerequisite(s): ECON 201 and ECON 202

ECON 331 Industrial Organization 3 Credit Hours
Theory and empirical evidence on the causes and effects of market power, especially in industrial markets. The focus is on the relationships between market structure and performance, and policy formation. (YR).
Prerequisite(s): ECON 202

ECON 335 Experimental Economics 3 Credit Hours
This course on experimental economics is devoted to laboratory experiments on individual behavior in markets as well as in social situations. It focuses on different forms of strategic interactions between agents, including competition, coordination, bargaining, and public choice. We will consider individual decision experiments, choice anomalies, and the role of information in learning and signaling. We will also discuss the design of various economic experiments, such as market bargaining, auctions, trust, gift giving, adverse selection, public goods, common pool resources, etc. Students are recommended (but not required) to take ECON 302 before enrolling in this class. Basic knowledge of Excel is required for this class.
Prerequisite(s): ECON 202 or ECON 2001
Restriction(s):
Cannot enroll if Class is Freshman
ECON 351  Environmental Economics  3 Credit Hours
Course examines the economic aspects of pollution problems. Topics covered in this course include the economic theory of externalities, the theory of public goods, and the optimum use of depletible natural resources. The role of cost-benefit analysis as a part of the decision-making process is also examined. (AY).
Prerequisite(s): ECON 202

ECON 355  Econ of the Medical Sector  3 Credit Hours
Course examines the health of a population and the health care industry, using the tools of economic analysis. Topics include the demand and supply of health services, alternate ways of financing health care, the application of cost-benefit analysis to health projects, and comparative health economic systems (e.g., Britain, Sweden). (AY).
Prerequisite(s): ECON 202

ECON 361  U.S. Economic History  3 Credit Hours
A survey of the processes of development of the United States economy, their social implications, and the sources of today’s economic problems. (YR).
Prerequisite(s): ECON 201 and ECON 202

ECON 362  Eur and Intl Economic Hist  3 Credit Hours
A survey of the processes of industrialization in the major non-American industrial economies, with a focus on their relevance and implications. (AY).
Prerequisite(s): ECON 201 and ECON 202

ECON 372  Economic Demography  3 Credit Hours
Course offers an introduction to economic demography, focusing on the interrelation between economic and population variables, and the techniques of demographic analysis. (OC).
Prerequisite(s): ECON 201 and ECON 202

ECON 375  Heterodox Economics  3 Credit Hours
This course introduces students to alternative perspectives on economic theory and method. These alternatives include: Marxian and radical political economics, institutional and evolutionary economics, behavioral economics, post-Keynesian economics and feminist economics. (OC).
Prerequisite(s): ECON 201 or ECON 202 or ECON 2001

ECON 385  Public Choice  3 Credit Hours
Public policy decision making, particularly governmental decisions regarding economic policies. Emphasis is on the use of economic methodology to analyze resource allocation via the political system rather than through private markets. (OC).
Prerequisite(s): ECON 201 and ECON 202

ECON 390  Topics in Economics  1 to 3 Credit Hours
Examination of problems and issues in selected areas of economics. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

ECON 390H  Topics in Economics  3 Credit Hours
Topic: The Economics of Religion, Crime, and Marriage. This course uses the tools of economics, particularly microeconomics, to explain key characteristics of religion, criminal behavior, and marriage. For religion, the course will explore church organization, church architecture, beliefs about the afterlife, doctrine about usury, and religious market structure, among others. For crime, the course will evaluate claims about the death penalty, gun control and the demand for crime. For marriage, the course will analyze multiple, marriage payments, family organization, and marriage for love, among others.
Prerequisite(s): ECON 202

ECON 390M  Topics in Economics  3 Credit Hours
Topic Title: Comparative Institutions: Cuba, the US and More. This course will analyze different institutions. This will range from colonialism to the mafia to prison gangs to economic development. A significant part of the class will be a spring break trip to Cuba. Before we go we will study the institutional literature on democracies and dictatorships and then spend a week traveling around one of the last communist countries that still exists.

ECON 398  Economics Internship  3 to 6 Credit Hours
This internship affords the student the opportunity to apply tools learned in economics courses to real-world work situations. The student has 8-16 hours of unpaid work per week under the guidance of a faculty advisor and complementary academic work supervised by an economics professor. Only three credit hours may be applied toward graduation credit. The internship is offered only on the S/E grading basis. Students cannot receive credit for both ECON 398 and ECON 498. (F,W,S). 3.000 TO 6.000 Credit hours

ECON 4011  Monetary Economics  3 Credit Hours
This course examines financial institutions in a macroeconomic theoretical context. A rigorous treatment of monetary theory is presented followed by practical discussion of U.S. monetary policy as implemented by the Federal Reserve System. Students cannot receive credit for both ECON 4011 and ECON 411.
Prerequisite(s): ECON 311 and ECON 301
Restriction(s):
Can enroll if Level is Undergraduate

ECON 4015  Introduction to Econometrics  3 Credit Hours
The theory and practice of the statistical analysis of economic relationships. Topics covered include the construction and estimation of econometric models and tests of economic theories, emphasizing the use of multiple linear regression. Students cannot receive credit for both ECON 4015 and ECON 415.
Prerequisite(s): MATH 113 or MATH 115 and ECON 305
Restriction(s):
Can enroll if Level is Undergraduate

ECON 4021  Economics of the Labor Sector  3 Credit Hours
Theoretical analysis and empirical studies of the nature and operation of labor markets. Includes theories of wage determination and income distribution, the nature of unemployment, the impact of collective bargaining on the economy, the extent and economic effects of discrimination, and the nature and effects of government wage and employment policies. ECON 321, Labor in the American Economy, is valuable background to this course although it is not a prerequisite. This course counts as a required capstone (4000-level) course in Economics and also counts toward the Economics Honors designation. Students cannot receive credit for both ECON 421 and ECON 4021.
Prerequisite(s): ECON 302
Restriction(s):
Can enroll if Level is Undergraduate

ECON 4065  History of Economic Thought  3 Credit Hours
Course examines the evolution of economic thought and theory from the early origins to the present, focusing on the major contributions to economics, especially from Adam Smith onward, and assesses the current condition of economic analysis. Students cannot receive credit for both ECON 465 and ECON 4065.
Prerequisite(s): ECON 302
Restriction(s):
Can enroll if Level is Undergraduate
ECON 407 Cost-Benefit Analysis 3 Credit Hours
Cost-benefit analysis arguably is the most important tool in evaluating public and private policies. Conceptually, cost-benefit analysis is simple: subtract the costs from the benefits and adopt those policies yielding the greatest net benefit. In practice cost-benefit analysis is much more complicated. Costs and benefits must be summed over time, requiring a calculation of net present value. Costs and benefits must be summed over different people, requiring a social welfare function. Finally costs and benefits must be summed over a variety of goods and services, some of which do not have market values or where market values are not appropriate measures. This course reviews the techniques involved in cost-benefit analysis and employs case studies to illustrate these techniques. (AY)
Prerequisite(s): ECON 202 and ECON 302
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

ECON 4085 Public Finance 3 Credit Hours
Analysis of the role of government in the economy. Course examines theories of the need for and nature of government intervention in economic activities. Includes analysis of public goods, externalities, taxation, state, and local finance, and models of public decision making. Students cannot receive credit for both ECON 4085 and ECON 481.
Prerequisite(s): ECON 302
Restriction(s):
Can enroll if Level is Undergraduate

ECON 416 Mathematical Economics 3 Credit Hours
The mathematical techniques of sets, matrix algebra, and differential calculus are applied to economic problems of comparative statics, constrained optimization, linear equation systems, input-output planning, and dynamic growth models. Recommended for students planning to attend graduate school. (YR).
Prerequisite(s): MATH 113 or MATH 115

ECON 433 Antitrust and Regulation 3 Credit Hours
This course uses economic theory to examine major antitrust laws and to evaluate government regulation of industry. ECON 331, Industrial Organization, is valuable background to this course although it is not a prerequisite. Students cannot receive credit for both ECON 433 and ECON 333. (OC).
Prerequisite(s): ECON 202
Restriction(s):
Can enroll if Level is Undergraduate

ECON 437 Behavioral Public Policy 3 Credit Hours
This course teaches you to apply the insights from behavioral economics and psychology to public policy design. Empirically-based behavioral science offers policy makers the opportunity to decrease the impact of psychological limitations of lazy or boundedly rational individuals. In this course we consider various public policies that are informed by behavioral science research in the areas of retirement savings, household borrowing, health care, energy use and choice of nutrition. Graduate version of the course requires completion of additional assignments.
Prerequisite(s): (ECON 201 and ECON 202) or PPOL 500
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

ECON 438 Beh Econ for Business & Policy 3 Credit Hours
This course is a reading intensive seminar on behavioral economics, which is the combination of psychology and economics that investigates what happens in markets in which some agents display human limitations and complications. The course focuses on the behavioral economics theory and its’ application to business practice and policy decision making. Specifically, in this course we: (1) examine the ways in which people deviate from the standard economics models, including irrationality, preferences for fairness, propensity to cooperate, trust, dual-interest, empathy and emotions; (2) explore behavioral economics theories and models; (3) discuss how the behavioral economics theories and models can be applied to solve business and policy problems. Graduate version of this course requires completion of additional assignments. Students cannot receive credit for ECON 336 and ECON 438 or ECON 538. (F,W,AY)
Prerequisite(s): ECON 202 or ECON 2001
Restriction(s):
Can enroll if Level is Undergraduate

ECON 442 Economic Development 3 Credit Hours
A survey of economic problems currently affecting third world countries and the various policy options available to them. Topics covered will include agrarian vs. industrial growth, and monetary and fiscal policies, planning problems, foreign exchange and debt problems. Students cannot receive credit for both ECON 442 and ECON 342 (OC).
Prerequisite(s): ECON 201 or ECON 202
Restriction(s):
Can enroll if Level is Undergraduate

ECON 444 Economies of the Middle East 3 Credit Hours
Survey of socio-economic issues of the post-WWII Middle East, using textbooks and web-based readings. Topics include population growth, urbanization, migration, gender issues, land reform, privatization, and stabilization policies. The Arab-Israeli conflict is not a focus of study. Grade based on papers and exams. Students cannot receive credit for both ECON 344 and ECON 444.
Prerequisite(s): ECON 201 or ECON 202
Restriction(s):
Can enroll if Level is Undergraduate

ECON 447 International Finance 3 Credit Hours
This course studies the large-scale economic issues in interdependent economies, such as the behavior of exchange rates, interest rates, income, wealth, prices, and the balance of payments. International finance focuses particularly on economic policies in a world with a multitude of currencies and increasingly integrated goods, financial, and capital markets. Students cannot receive credit for both ECON 447 and ECON 347.
Prerequisite(s): ECON 201
Restriction(s):
Can enroll if Level is Undergraduate

ECON 448 International Trade 3 Credit Hours
Course analyzes in depth the debate of free trade vs. protectionism. Different theoretical models of the ‘gains from trade’ are presented, as well as studies of their empirical validity. Some historical perspective is included, as well as discussion of the current situation of the European Union. Students cannot receive credit for both Econ 348 and Econ 448.
Prerequisite(s): ECON 201 and ECON 202
Restriction(s):
Can enroll if Level is Undergraduate
ECON 482  Regional Economics  3 Credit Hours
Course explores methods of economics evaluation of regions in terms of intra- and inter-regional activity. Regions may smaller than a nation, be a collection of nations, or be composed of portions of more than one nation. Theoretical topics include the theories of (1) the location of the firm, (2) spatial demand, (3) agglomeration economies, and (4) input-output analysis. Regional development policy is discussed using Michigan and Ontario as subjects. Students cannot receive credit for both ECON 382 and ECON 482.
Prerequisite(s): ECON 201 or ECON 202 or ECON 2001
Restriction(s):
Can enroll if Level is Undergraduate

ECON 483  Urban Economics  3 Credit Hours
The economics of the city and the introduction of space in economic analysis; the determination of land use patterns, the location of firms and industries, and an urban area’s growth; economic analysis and policy issues concerning urban poverty, housing, transportation, the local public sector, and other urban problems. Students cannot receive credit for both ECON 483 and ECON 381.
Prerequisite(s): (ECON 201 and ECON 202) or ECON 2001
Restriction(s):
Can enroll if Level is Undergraduate

ECON 497  Economics Seminar  3 Credit Hours
An advanced study in selected areas of Economics. Topics vary; see the current Schedule of Classes for topics and prerequisites. May be offered in satisfaction of 400-level elective requirement for concentration. (OC).
Restriction(s):
Can enroll if Level is Undergraduate

ECON 499  Directed Research  1 to 3 Credit Hours
Independent study under the direction of a faculty supervisor in advanced topic areas. Normally must be elected on the “pass/fail” option, in which case it does not count toward credit hour requirement for concentration. Special consideration for the A through E grading option must be approved by members of the Economics discipline. In all cases students must have faculty supervisor’s permission to register.
Restriction(s):
Can enroll if Level is Undergraduate

* An asterisk denotes that a course may be taken concurrently.
Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

EDA 205  Introduction to Education  3 Credit Hours
This course is designed to introduce students to the field of education. In this course students will gain a working knowledge of teacher certification and professionalism, state standards, and high-stakes testing. Additionally, students will be introduced to basic forms of lesson planning, classroom assessment, and instructional techniques. As a part of the course, all students will begin to use the M-Portfolio system. Students will also carry out assignments in school and therefore must complete required clearance forms prior to field placement.
For more information access the Field Placement Office website at: www.umdearborn.edu/cehhs/cehhs_fpo
Restriction(s):
Cannot enroll if Class is Post-baccalaureate NCFD or Undergraduate NCFD or Undergraduate NCFD or Graduate
Can enroll if Level is Undergraduate

EDA 340  Foundations of American Ed  2 to 3 Credit Hours
A general survey of education’s theoretical and structural foundations. This course introduces students to the history and philosophy of education as well as to the organization and financing of schools in America. Particular attention will be given to the role of education in a democratic society and to the notion of teaching as a profession.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior

EDA 419  Early Literacy/Language Devel  3 Credit Hours
This course examines early language development, the factors that contribute to its growth and the role that it plays in the development of literacy. Diagnostic techniques for assessing language and literacy and teaching strategies and materials to facilitate language and literacy growth in children birth through third grade will be discussed.
Restriction(s):
Cannot enroll if Class is Freshman or Graduate

EDA 450  Hist/Theory of Bilingual Educ  2 to 3 Credit Hours
The course provides an extensive background on bilingual education (programs where two languages are used as media of instruction) in the United States, and the events that led to the inception of such programs on the Federal as well as the State levels. The course provides a background on the concept itself, its rationale and implementation.
Restriction(s):
Can enroll if Class is Junior

* An asterisk denotes that a course may be taken concurrently.
Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
**Educ B-Educational Admin (EDB)**

**EDB 421  Current Issues in Early Ed  2 Credit Hours**

Examines the expanding field of early childhood in order to understand major issues which are shaping the development and support of early education and child care programs. Designed for present and future teachers, administrators, and other workers in the field of early childhood, and for the general public who must participate in major pending decisions relating to such questions as proposed changes in state licensing, teacher certification, and funding sources.

**Restriction(s):**

Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior

**EDB 422  Lead,Advoc, Admin Early Ch Prg  3 Credit Hours**

This course promotes role of the early childhood educator as a leader and advocate for young children and families. Designed for present and future teachers, administrators and other professionals who participate in decisions relating to public policy and legislation, state licensing, teacher certification, funding resources, parental involvement and other issues affecting young children and families.

**Prerequisite(s):** EDC 240

**Restriction(s):**

Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

**Other Content**

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:

- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:

- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally

**Educ C-Psychological Foundatns (EDC)**

**EDC 240  Psych of Child Development  3 Credit Hours**

An introductory presentation of facts and theories concerning the development of the child from birth to adolescence. The practical applications of present knowledge in this field will be examined. Field observations and directed interactions with children are required. Limited to undergraduates. Not open to students with credit in C540.

**Corequisite(s):** EDC 241

**Restriction(s):**

Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Freshman or Sophomore or Junior or Senior

**EDC 241  Psych: Child Devel Practicum  1 Credit Hour**

A supervised field experience related to the study of child development involving a minimum of 45 clock hours of observation and work spread over a semester in an early childhood setting.

**Corequisite(s):** EDC 240

**Restriction(s):**

Can enroll if Class is Freshman or Sophomore or Junior or Senior

**EDC 300  Educational Psychology  3 Credit Hours**

Consideration of research findings relevant to the learner in the classroom with emphasis on factors that influence learning. Topics include: the teacher trainer’s role in motivation; formulation of generalizations pertaining to the physical, mental, social, and emotional development of learners; analysis of selected aspects of the teaching-learning situation including the dynamics of interaction, classroom control, guidance, and appraisal of growth.

**Corequisite(s):**

**Restriction(s):**

Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Sophomore or Junior or Senior

Can enroll if College is Arts, Sciences, and Letters or Business or Education, Health, and Human Services or Engineering and Computer Science

**EDC 301  Practicum in Ed Psychology  1 Credit Hour**

A supervised field experience related to the study of educational psychology involving a minimum of 45 clock hours of participation/observation and work spread over a semester in a school setting. TB clearance and criminal background check are required.

**Corequisite(s):**

**Restriction(s):**

Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

Can enroll if College is Education, Health, and Human Services

**EDC 302  Adol Devl & Classroom Mgmt  3 Credit Hours**

An examination of the current theories and research findings concerning the physical, social, emotional, and cognitive development during the early and late adolescent years. Theory will be related to educational and parenting practices. Significant material will be included addressing classroom management of the middle school and high school classroom using simulation, case studies and videos of actual classrooms.

**Corequisite(s):** EDC 304

**Restriction(s):**

Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior

Can enroll if College is Education, Health, and Human Services
EDC 303  Mntl Hlth in Med, Hu Srv, Lrn  3 Credit Hours
Full Title: Mental Health Issues in Medical, Human Services, & Learning Environments. This course surveys mental health across the lifespan and the manifestation of mental health issues in medical, human services, and educational environments. Included are developmental factors, diagnostic issues, theoretical formulations, etiology, commonly used evidence-based treatments, and research findings related to the range of mental health issues. Issues related to classification systems, diagnosis, and institutional responses to mental health issues within the context of medical, human services, and learning environments are also addressed. Medical, legal, educational, and social-emotional issues related to mental health and the treatment of people living with mental health issues are addressed. Other issues such as comorbidity, cultural influences on the expression of mental health, and psychological factors related to physical conditions will also be considered. (F,W,S)
Prerequisite(s): EDC 240 or CHE 101 or SWK 200

EDC 304  Pract Adol Devl&Clsrm Mgmt  1 Credit Hour
This one credit practicum consists of 45 clock hours of observation over the course of the semester in a secondary classroom. Reflective journals and guided assignments will focus the observations on an understanding of developmental concepts and classroom management policies. Active participation with secondary students will ensure the application and critique of these concepts in an educational setting.
Corequisite(s): EDC 302
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior

EDC 306  Applied Behavior Analysis I  3 Credit Hours
This is the first in a two course sequence in applied behavior analysis, focusing on best practices and current research. General topics to be covered include principles of learning, research methods in applied behavior analysis, skills training and stimulus control techniques, interventions for problem behavior, ethical issues, and the application of behavior analysis across a wide range of populations, settings, and behaviors. (F,S)

EDC 307  Applied Behavior Analysis II  3 Credit Hours
This is the second in a two course sequence in applied behavior analysis (ABA) that focuses on the application of the fundamental principles, processes, and concepts of the field that were covered in Applied Behavior Analysis I. Through discussion, demonstration, and analysis, students will learn about specific behavior change procedures based upon the principles of ABA and the process for selecting and implementing those procedures.
Prerequisite(s): EDC 306

EDC 308  Intro Dev Disabilities  3 Credit Hours
Full Title: Introduction to Developmental Disabilities This course will provide an overview of the issues related to the diverse group of individuals with developmental disabilities. Topics include the history and public policy issues related to this population. Special consideration will be given to familial issues within the context of socio-cultural issues and the role of families in the provision of services across the lifespan. Students will be exposed to the range of assessment practices for developmental disabilities, including intellectual, adaptive behavior, psychosocial, behavioral, psychoeducational, and developmental. Specific conditions under the category of developmental disabilities are covered, along with the diagnostic criteria for these conditions. Other topics include educational and behavioral interventions, person centered planning/family centered support, post-school and adult issues, physical and mental health issues, services and supports to improve quality of life, controversial therapies, and ethical issues for individuals with developmental disabilities. (F, S)

EDC 350  Intro to Ethics for ABA  3 Credit Hours
Full Title: Introduction to Ethics for Applied Behavior Analysts This course provides students pursuing the BCaBA certification with an introduction to the Professional and Ethical Complicity Code for Behavior Analysts. Through reading and discussion of the code students will learn to recognize Code violations and avoid unethical behavior and Code violations in all aspects of practice. Throughout the course, case studies will be used as a basis for demonstrating Code violations. (YR)
Prerequisite(s): EDC 306 and EDC 307

EDC 390  Observ and Particip in Ed Set  1 to 3 Credit Hours
An opportunity for supervised observations of, and participation with, children and adolescents in educational settings. For students who need additional laboratory experience prior to student teaching.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDC 400  Adult Learning:Theory/Practice  3 Credit Hours
This course introduces students to current theory and practice for understanding and working with adult learners in today's society.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Post-baccalaureate NCFD or Sophomore or Junior or Senior

EDC 401  Introduction to LD  3 Credit Hours
Introduction to LD is designed to provide students with an overview of the field of learning disabilities. Discussions will include physical, social, emotional, and cognitive comparisons of developmental differences and similarities between persons of all ages with and without LD, historical and theoretical perspectives, current trends and issues, assessment, and collaboration among educators.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Undergrad Certification only or Sophomore or Junior or Senior
Can enroll if College is Education, Health, and Human Services
EDC 402  Research Methods Beh Analysis  3 Credit Hours
The purpose of this course is to introduce you to the fundamentals of behavior-analytic research methods. The course will review single-case time series methodologies to assess various dimensions of behavior and evaluate the effects of interventions of behavior. Single-case research has played an important role in developing and evaluating interventions designed to modify some aspect of human behavior. This course will encompass a broad range of research areas that utilize single-case designs within both the behavior analytic literature and other disciplines including school psychology, medicine, and business. (F, S)
Prerequisite(s): EDC 306

EDC 410  Dev Peer/Social Relationships  2 Credit Hours
Students will examine the processes of peer relations and socio-emotional development from birth to adolescence. Topics to be covered in this course include attachment, peer popularity and intimacy. As well, students will discuss the importance of the family on social development. Classroom environment and peers as educators will also be covered.
Prerequisite(s): EDC 340 or EDC 240

EDC 412  Social Devl/Pos Guidnce Techn  3 Credit Hours
This course will examine the process of social and emotional development in childhood through adolescence. Positive strategies to promote and guide this development in the classroom will be explored using behaviorist and constructivist frameworks. Topics will include character education, discipline models, conflict resolution and family collaboration. Guiding the development of emotional regulation, perspective taking and peer relationships in children including children with special needs will be investigated.
Restriction(s):
Can enroll if Class is Post-baccalaureate
Can enroll if Major is Child&Fam:Early Childhood Educ, Elementary Education
Can enroll if College is Education, Health, and Human Services
Can enroll if Level is Undergraduate

EDC 414  Early Child Ed Special Needs  3 Credit Hours
Focuses on the psychological and educational needs of the young child with special needs. Discusses identification techniques and educational strategies for teaching in a regular early childhood classroom with young children having special needs. Special emphasis will be placed on behavioral, linguistic, and intellectual areas. Suitable for classroom teachers, childcare directors, and teachers in training.
Prerequisite(s): EDC 540 or EDC 340 or EDC 240
Restriction(s):
Can enroll if Class is Post-baccalaureate
Can enroll if Major is Child&Fam:Early Childhood Educ, Elementary Education

EDC 417  Mgmt of Classroom Behavior  3 Credit Hours
Provides intervention and management techniques for teachers and teacher candidates using principles of behavior modification. Includes examination of theoretical foundations, research and field reports, participation in self-management projects, and consideration of various applications in regular and special classrooms. Field experience is optional. Course will focus on classroom management in early childhood and elementary environments, allowing a more focused examination of topics and case studies geared to those grade levels. (OC)
Restriction(s):
Can enroll if Class is Undergraduate

EDC 420  Hum Sexuality:Psyc-Ed Concepts  2 Credit Hours
The course is intended to acquaint elementary and secondary teachers with the elements that comprise sexuality as it relates to their lives and those of their students. Although a basic core of information is to be covered, the content of each class will provide for the needs and interests of the teachers. Teachers will be directly involved in identifying problems and the development and collection of strategies for problem resolution.
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

EDC 425  Treat Plan/Eth Prof Cond ABA  3 Credit Hours
Full Title: Treatment Planning/Ethical and Professional Conduct in Applied Behavior Analysis. This course provides a comprehensive approach to treatment planning in Applied Behavior Analysis. The course addresses application of the principles of Applied Behavior Analysis to intervention, assessment, implementation, evaluation, program continuation/maintenance, and data-based clinical decision making. Central to treatment are ethical responsibilities for Applied Behavior Analysts. The Professional and Ethical Compliance Code for Behavior Analysts, as put forth by the Behavior Analyst Certification Board is addressed. Throughout the course, the behavior analytic literature is used as the basis for all coursework, discussion, and evaluation. (YR)
Prerequisite(s): EDC 306

EDC 431  Constructivist Education  3 Credit Hours
An examination of constructivist theory and its application to educational practices. The nature and stages from birth through adolescence of cognitive and social development from the constructivist viewpoints of Piaget, Vygotsky, and others will be discussed. The major focus will be the application of constructivist theory to educational goals, teaching strategies and curriculum. (OC)
Prerequisite(s): (EDC 340 or EDC 240) and (EDC 341 or EDC 241)
Restriction(s):
Can enroll if Class is Undergraduate
Can enroll if Major is Child&Fam:Early Childhood Educ, Elementary Education

EDC 439  Child Maltreatment and Trauma  3 Credit Hours
This course will examine adverse childhood experiences, including the impact of physical abuse, neglect, sexual abuse, and other forms of psychological trauma. Particular emphasis will be placed on the role of trauma informed professionals to identify, assess, and support the needs of children, youth, and families impacted by trauma and child maltreatment. This course will explore various levels of prevention, intervention, and collaborative response to suspected cases of child maltreatment by multi-disciplinary teams, including investigation and treatment. (YR)

EDC 440  The Child: Birth to Three  3 Credit Hours
An examination of current theories and findings concerning the physical, social, emotional, and intellectual development of the young child from prenatal to three years of age. Topics include fetus maturation, capabilities of the newborn, language, cognition, and environmental influences on development. Theory will be related to infant care practices in the home and in early childhood centers.
Restriction(s):
Can enroll if Class is Undergraduate
Can enroll if Major is Child&Fam:Early Childhood Educ, Elementary Education
Can enroll if Level is Undergraduate

Restriction(s):
Can enroll if Class is Post-baccalaureate
Can enroll if Level is Undergraduate
Can enroll if Major is Child&Fam:Early Childhood Educ, Elementary Education
Can enroll if Level is Undergraduate
Can enroll if Major is Child&Fam:Early Childhood Educ, Elementary Education
Can enroll if Level is Undergraduate
EDC 442 EC: Fam/Sch/Comm Collaboration 3 Credit Hours
Focuses on factors that influence the building of partnerships among early childhood professionals, families, and communities. Includes understanding and working with culturally and linguistically diverse families. Various communication and problem-solving strategies that promote family involvement and community outreach are practiced through discussion and role play.
Prerequisite(s): EDC 340 or EDC 240 and EDC 341 or EDC 241
Restriction(s):
- Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDC 443 Family/School/Community Collab 2 Credit Hours
Characteristics, roles, and functions of contemporary families are described. Various communication and training strategies designed to promote collaboration and teamwork within and between the school staff, the families, and community are described and practiced through discussion, problem-solving activities, and role playing. Family effectiveness assessment instruments and strategies are also described and practiced.
Restriction(s):
- Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDC 445 Develop Assess of Young Child 3 Credit Hours
Survey and demonstrations of formal and informal measures to assess young children's physical, social, intellectual, and emotional development. Instruction in some techniques appropriate for use by classroom teachers, childcare directors, health care professionals, and others who are interested in assessing the development of children aged birth to nine years. For graduate credit elect EDC 545. (AY)
Prerequisite(s): EDC 240 or EDC 340
Restriction(s):
- Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDC 446 Cog/Memory Dev in Children 3 Credit Hours
Examines the theories and recent research on the development of cognition and memory. Selected topics include: perception, language, representation, social cognition and problem solving. Educational implications and strategies for developing children's thinking and memory are explored.
Prerequisite(s): EDC 240 or EDC 340
Restriction(s):
- Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDC 454 Formal & Informal Testing&Eval 2 to 3 Credit Hours
In this course students will develop their knowledge and skills in traditional and non-traditional methods for evaluating classroom learning, performance technology and training. Students will learn how to construct evaluations, tests, analyze evaluation results, conduct program evaluation and educational assessment in relation to performance technology, training, and teaching and learning. (OC)
Restriction(s):
- Can enroll if Class is Junior or Senior

EDC 455 Assmt: Sec Lang Learning K-12 2 Credit Hours
In this course students will learn to identify, assess, and place second language learners for appropriate instruction and instructional programs. Students will review, evaluate, and implement a variety of assessments and strategies intended for use with limited English proficient students, K-12. Students will also examine the impact and issues regarding high-stakes assessments on English language learners. Official admission to and good standing in the teacher certification program are required. (W)
Prerequisite(s): EDD 447 and EDD 448
Restriction(s):
- Can enroll if Class is Junior or Senior

EDC 456 Learning & Classrm Assessment 3 Credit Hours
In this course students will examine the relationship between curriculum, instruction and assessment. Students will review different forms of assessment and evaluate the strengths and weaknesses of each format. Students gain experience in 1) selection of assessment formats based on curricular focus and student developmental levels; 2) development of assessments; 3) decision-making based on the results of the assessments. (YR)

EDC 460 Educating the Exceptional Child 3 Credit Hours
Characteristics, identification, assessment, and instruction of students with exceptionalities are addressed. Includes students with learning disabilities, behavior disorders, emotional impairment, mild mental retardation, communicative disorders, visual and hearing impairments, orthopedic impairments, giftedness, and chronic medical conditions. Service delivery models, general assessment procedures, and curricular and instructional adaptations that help integrate students with exceptionalities into the general education classroom will also be addressed.
Restriction(s):
- Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior

EDC 471 Prog Impl, Super, & Management 3 Credit Hours
Full Title: Program Implementation, Supervision & Management This course seeks to address the selection, development, and integration of behavior change procedures within the context of the BACB's Compliance Code and Disciplinary Systems, and strategies for personnel training, supervision and management. Through the use of case studies, students will develop behavioral programming, consider the ethical guidelines necessary for the development and execution of programming, consider the personnel issues to consider for effective programming, and examine strategies that allow for more effective personnel training, monitoring, and supervision. (YR)
Prerequisite(s): EDC 306 and EDC 307

EDC 476 Literacy Assessmt for Instr 4 Credit Hours
Topics include various diagnostic tools for reading, writing, speaking, and listening. Students will learn to implement a variety of diagnostic techniques for assessing literacy for instructional purposes and communication with parents, other professionals, and paraprofessionals about student progress.
Prerequisite(s): EDD 468 and (EDD 419 or EDA 419)
Restriction(s):
- Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
- Can enroll if College is Education, Health, and Human Services
EDC 480  Behavioral Assessment  3 Credit Hours
This course will focus on Functional Behavior Assessment, a process used in the field of Applied Behavior Analysis (ABA) that uses a variety of techniques and strategies to gather information that allow practitioners to identify the function, or purpose, of behavior. Essential elements of the Functional Behavior Assessment/Functional Analysis process will be addressed with emphasis on the interrelationship between the assessment results and the development of interventions based upon the principles of ABA. (YR)
Prerequisite(s): EDC 306 and EDC 307

EDC 490  Litrcy Instr & Assess for Els  3 Credit Hours
Full Title: Literacy Instruction and Assessment for English Language Learners The course covers current and research-based pedagogy for literacy instruction and assessment for teaching English language learners. This course provides the knowledge and skills to effectively teach literacy to non-native speakers of English. (YR)
Restriction(s):
Cannot enroll if Class is Freshman

Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

---

EDD 304  Seminar: Teach Secondary Grds  1 to 2 Credit Hours
Draws upon the resources found in the directed teaching environment. Considers problems and issues in four broad areas: students in the school, the teacher's professional responsibilities, curriculum understandings, and administrative/organizational problems. Open only to students enrolled in EDD 301.
Corequisite(s): EDD 301
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only

EDD 305  Direct Teach in Elem School  6 to 12 Credit Hours
Directed teaching consists of a teaching internship in a selected classroom for a full term under the direction of an experienced teacher. Includes a period of brief observation followed by several weeks of responsible teaching including the writing, implementing, and evaluation of lesson plans using University-approved practices. Official admission to and good standing in certification program as well as valid TB clearance are required.
Prerequisite(s): EDC 300 and EDC 301 and (EDC 340 and EDC 460 or EDC 240) and EDD 452 and EDD 467 and EDD 468 and EDD 471 and EDD 485 and EDD 495 and EDF 450
Corequisite(s): EDD 307
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Senior or Graduate
Can enroll if College is Education, Health, and Human Services

EDD 307  Seminar: Teaching Elem Grades  1 to 2 Credit Hours
Draws upon experience in elementary directed teaching. Considers pupils in the school, classroom environment, teaching competencies, professional responsibilities, school curriculum and policies, and administrative/organizational problems. Open only to students enrolled in EDD 305.
Corequisite(s): EDD 305
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Senior
Can enroll if College is Education, Health, and Human Services

EDD 404  Inquiry Based Curr Prim Grades  3 Credit Hours
This course examines how teachers can apply inquiry method to all curriculum areas in the primary grades. Major focus will be designing curriculum to meet state and professional guidelines within a developmentally appropriate context.
Prerequisite(s): (EDC 340 and MIBR with a score of P and PIU with a score of 1 or (EDC 240 and MGPA with a score of 2.75 and EDC 341) and EDC 241) and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Corequisite(s): EDD 410
Restriction(s):
Can enroll if Class is Junior or Senior
EDD 406  Teach Strategies Early Child  3 Credit Hours
Foci on the developmentally appropriate educational practices for children from infancy through the primary grades. Introduces various procedures and strategies to stimulate inquiry in the early childhood classroom. Observation skills, planning, and implementing of lessons in the field will be emphasized. Class seminar designed to correlate theory with observation and field work.
Prerequisite(s): (EDC 240 or EDC 340) and (EDC 341 or EDC 241) and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 410
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 407  Workshop: Global Ed Soc Stds  1 to 3 Credit Hours
A course designed to help elementary and secondary teachers develop strategies that will help them to teach about an interdependent and changing world. Concepts such as change, the culture, and interdependence will be introduced and examined in terms of implementation within the framework of the existing social studies curricula.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Graduate

EDD 410  Practicum in Early Child Ed  1 Credit Hour
A supervised field experience related to the study of early childhood education involving a minimum of 45 clock hours of observation and work spread over a semester in an early childhood school setting. TB clearance, FIA clearance, criminal background check, and physician’s statement of good health are required. (F.W).
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 406
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 411  Directed Tchg: Early Childhood  3 or 4 Credit Hours
Supervised observation and teaching in early childhood programs under the joint direction of university and school personnel. Open only to students in the Early Childhood Education program or Children and Families Program who have been approved by the program director. Must be elected concurrently with EDD 412. TB clearance, FIA clearance, criminal background check, and physician’s statement of good health are required.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (COMP 105 or COMP 110 or CPAS with a score of 40 or COMP 280 or COMP 270) and EDD 406 and EDD 410
Corequisite(s): EDD 412
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 412  Seminar in Early Childhood Ed  2 Credit Hours
Focuses on developmentally appropriate educational practices for children in early childhood programs. With an emphasis on writing developmentally appropriate lesson plans, the Reggio Emilia Inspired Approach, assessment of young children, classroom and staff management, multiculturalism, family centered approaches, children with special needs and professional development. The seminar provides a theoretical foundation for the field placement (D411, D418 and D494).
Open only to students in Early Childhood or Children and Families program who have been approved by the program director. TB clearance and physician’s statement of good health required. EDD 406 and 410 are required for undergraduates.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270) and EDD 406 and EDD 410
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior or Graduate

EDD 413  LD Elem Directed Teaching  2 Credit Hours
Field experience with elementary students with learning disabilities in general and special education classrooms. Experiences include delivery of direct instruction through observation, tutoring, small and large group instruction, curriculum development and adaptations, participation in the IEP and ITP process, collaboration and co-teaching with regular classroom teachers in various academic content areas, and other activities under the on-site supervision of a certified teacher of LD and LD certified University field supervisor. Pre-requisite: Grade of "B" or better in C401, N401, N403, N404, and N402 General Ed. Directed Teaching: EDN 408 and EDD 420.
Prerequisite(s): EDC 401 and EDN 401 and EDN 403 and EDN 404 and EDN 402
Corequisite(s): EDD 420, EDN 408
Restriction(s):
Can enroll if Class is Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services
Can enroll if Major is Special Education

EDD 416  Creativity/Crit Thnk Yng Childr  3 Credit Hours
This course intends to study the processes and products of creativity for both adults and young children. Strategies for promoting the emerging creative disposition of the young child, birth to eight years, will be explored. Areas of focus will include art, music, movement, dramatic play, improvisation, storytelling, and problem-solving. The importance of understanding and encouraging the young child’s capacity for representation skills will be emphasized.
Prerequisite(s): EDC 340 and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate
EDD 417  Wrkshp: Biling/Bicult Pupils  1 to 4 Credit Hours
The course will focus on developing a) an understanding of bilingual and bicultural pupils by examining their ethnic and racial backgrounds in terms of their values and institutions and how these affect their adjustment in the school and community environments, and b) effective learning strategies, techniques, and materials to use in various content areas.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Graduate
EDD 418  Children and Families Intern  4 Credit Hours
Supervised observation and teaching in an Early Childhood classroom setting, or parent education program in a Family Service Agency under the joint direction of University and school or Agency personnel. Open only to students in the Children and Families program who have been approved for the course by the program director. Must be elected concurrently with EDD 412. TB clearance, FIA clearance, criminal background check, and physician’s statement of good health required.
Prerequisite(s): EDD 411 and EDD 412
Corequisite(s):
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
EDD 419  Early Literacy/Language Develp  3 Credit Hours
This course examines early language development, the factors that contribute to its growth and the role that it plays in the development of literacy. Diagnostic techniques for assessing language and literacy and teaching strategies and materials to facilitate language and literacy growth in children birth through third grade will be discussed. (YR)
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270) and EDA 340
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Education, Health, and Human Services
Can enroll if Program is
EDD 420  LD Sec Directed Teaching  2 Credit Hours
Field experience with elementary students with learning disabilities in general and special education classrooms. Experiences include delivery of direct instruction through observation, tutoring, small and large group instruction, curriculum development and adaptations, participation in the IEP and ITP process, collaboration and co-teaching with regular classroom teachers in various academic content areas, and other activities under the on-site supervision of a certified teacher of LD and LD certified University field supervisor. Pre-requisite: Grade of B? or better in C401, N401, N403, N404, and N402 General Ed. Directed Teaching Co-requisite: EDN 408.
Prerequisite(s): EDC 401 and EDC 402 and EDC 403 and EDC 404 and EDD 401 and EDD 402 and EDD 413
Corequisite(s): EDN 408, EDC 413
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Education, Health, and Human Services
Can enroll if Major is Special Education
EDD 421  Directed Teach Secondary Sch  6 to 12 Credit Hours
Directed teaching consists of a teaching internship in a selected classroom for a full term under the direction of an experienced teacher. Includes a brief period of observation followed by several weeks of responsible teaching including the writing, implementing, and evaluation of lesson plans using University-approved practices. Official admission and good standing in the School of Education certification program are required. Completion of methods courses in the major and minor and passing appropriate MTTCC tests required. Students cannot receive credit for both EDD 421 and EDD 301.
Prerequisite(s): EDC 300 and EDC 301 and (PSYC 407 or EDC 302) and EDC 460
Corequisite(s): EDD 424
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services
EDD 424  Sem: Teaching Secondary Grds  1 Credit Hour
This course draws upon the resources found in the directed teaching environment. Students will consider problems and issues in four broad areas: students in the school, the teacher's professional responsibilities, curriculum understandings, and administrative/organizational problems. Open only to students enrolled in EDD 421.
Corequisite(s): EDD 421
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services or Arts, Sciences, and Letters
EDD 427  Workshop: Art in Elem School  2 Credit Hours
A course which presents the rationale, trends, and principles of art education for elementary teachers. Teachers will have ample opportunities to experiment with various art media such as printmaking, puppetry, paints, and clay. Different strategies that focus on the creative growth of children will be developed.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Graduate
EDD 429  Tch Cntrv Iss at Elem/Sec Lvl  2 to 3 Credit Hours
This course is designed to provide the classroom teacher with the rationale, various approaches, and strategies and techniques to use in teaching controversial issues at the elementary and secondary levels.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
EDD 435  Dir Teaching: Elementary Sch  6 to 12 Credit Hours
Directed teaching consists of a teaching internship in a selected classroom for a full term under the direction of an experienced teacher. Includes a brief period of observation followed by several weeks of responsible teaching including the writing, implementing, and evaluation of lesson plans using University-approved practices. Official admission and good standing in the School of Education certification program are required. Completion of methods courses in the major and minor and passing appropriate MTTC tests required. Student may not receive credit for both EDD 435 and EDD 305.
Corequisite(s): EDD 437
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate
Cert only or Senior
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EDD 437  Sem: Teaching Elementary Grds  1 Credit Hour
This course draws upon the resources found in the directed teaching environment. Students will consider problems and issues in four broad areas: students in the school, the teacher's professional responsibilities, curriculum understandings, and administrative/organizational problems. Open only to students enrolled in EDD 435.
Corequisite(s): EDD 435
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate
Cert only or Senior
Can enroll if College is Education, Health, and Human Services or Arts, Sciences, and Letters

EDD 440  Teach English in Second Grds  2 to 3 Credit Hours
Investigates the general and specific goals and objectives of English education. Trends, materials, and strategies are presented. A study of outstanding problems in the teaching of English composition, literature, grammar, and language are discussed. Official admission to and good standing in teacher certification program are required. EDD 441 required concurrently for undergraduate only.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 441
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate
Cert only or Junior or Senior
Can enroll if College is Education, Health, and Human Services or Arts, Sciences, and Letters

EDD 441  Practicum: English Second Grd  1 Credit Hour
A supervised field experience related to the study of English in the secondary grades involving a minimum of 45 clock hours of observation and work spread over a semester in a school setting. Official admission to and good standing in teacher certification are required. For graduate credit elect EDD 502.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 440
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior or Graduate

EDD 442  Differentiating Inst K-12 Clrm  2 to 3 Credit Hours
Individualized instruction combined with the latest information on the brain and our understanding of multiple intelligences leads us to a new method of meeting the needs of students called differentiating instruction. This course will look at the concept of differentiating instruction in-depth. (OC).
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDD 443  Tchg Writ at the Secondary Lvl  2 to 3 Credit Hours
This course is designed to help the classroom teacher promote functional and creative writing among students at the secondary school level. Attention will be given to both theory and research with emphasis on the development of instructional strategies, teaching materials and practical resources. (OC)
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Undergrad Certification only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDD 444  New Mthds,Strat/Mat Soc Stud  2 Credit Hours
Examines new developments in methodology in relation to learning theory. Investigates systems for evaluating curricular materials. Explores experimental programs, new courses of study, multimedia approaches and current research in the social studies. (OC)
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

EDD 446  Intervention Strat EC Spec Ed  3 Credit Hours
Strategies and methods which early educators can use when planning and implementing interventions for infants, toddlers and young children with disabilities and their families. Emphasis will be on addressing family identified priorities and the goals and objectives stated on the Individual Family Service Plan (IFSP) or Individual Educational Plan (IEP) using activity-based intervention, adapting materials, modifying environments and using assistive technology. (W, YR).
Prerequisite(s): EDC 414 and (EDC 340 or EDC 240) and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate
Cert only or Junior or Senior
Can enroll if College is Education, Health, and Human Services
EDD 447 Tchg English as Second Lang 3 Credit Hours
This course examines current methodologies and theories for English as a second language learning and instruction. Emphasis will be placed on a standards-based curriculum for English language learners. The use of communicative activities and strategies for developing English language skills in the elementary grades will be emphasized. Official admission to and good standing in a teacher certification program are required.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 448
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 448 Pract: Tchg Engl Secnd Lang 1 Credit Hour
This course examines current methodologies and theories for English as a second language learning and instruction. Emphasis will be placed on a standards-based curriculum for English language learners. The use of communicative activities and strategies for developing English language skills in the elementary grades will be emphasized. Official admission to and good standing in a teacher certification program are required. TB clearance, physician’s statement of good health, criminal background clearance, and bloodborne pathogens/infectious diseases training are required.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 447
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 450 Teach Math in Second Grades 3 Credit Hours
This course discusses: 1) the more important parts of recent pedagogical literature, 2) new instructional materials, methods, and curricular trends, and 3) procedures useful in the construction of new units and in the improvement of curricular units. Official admission to and good standing in a teacher certification program are required. EDD 451 required concurrently for undergraduates only. For graduate credit elect EDD 565.
Prerequisite(s): MATH 331 and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 451
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 451 Practicum: Math Second School 1 Credit Hour
A required supervised field experience related to the teaching of mathematics in grades 7-12. Involves 45 clock hours of work and observation in a classroom setting. The practicum includes the construction of classroom activities and lesson plans designed to strengthen students’ skills in communication, problem solving, making connections, and in the use of technology. Official admission to and good standing in teacher certification program are required. TB clearance and physician’s statement of good health required. For graduate credit, elect EDD 566.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 450
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior or Graduate

EDD 452 Methods of Teaching Math K-8 3 Credit Hours
The course relates to the teaching of the mathematics curriculum in the elementary and middle school. The emphasis is on the development of teaching techniques that promote problem solving, reasoning, connections, communication, and concept and algorithmic development. Cooperative groups, manipulatives, technology, and alternative assessment will be explored as tools for meeting the special needs of every child in grades K-8. Required of all preservice elementary teachers. Official admission to and good standing in teacher certification program required. The course includes a field experience in an assigned school setting.
Prerequisite(s): MATH 387 and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 454 Wkshp: Newspaper in Education 2 Credit Hours
A course designed to familiarize elementary and secondary teachers with the use of newspapers as a classroom resource. Workshop participants will use the daily newspaper and other resource materials to develop activities appropriate for meeting their own professional needs. Emphasis will be on the enhancement of academic skills, practical life skills and creative expression. (OC)
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Senior
EDD 463  
Tchg Giftd Stdtnt Reglr Clssr  
2 Credit Hours
This course introduces classroom teachers to the education of gifted and talented students in the regular classroom. It is designed to help teachers understand the social, emotional, and intellectual needs of gifted students and to show then ways of effectively addressing these needs along with those of the other students present. It will offer specific proposals for structuring the learning environment as well as for selecting appropriate levels and types of subject matter. (OC).
Prerequisite(s): PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

EDD 466  
Tchg Coll Sci: Clsrm Dynamics  
3 Credit Hours
A seminar analyzing current methods of college science teaching. Students will be paired with a senior faculty mentor and participate in the planning and teaching of introductory courses. Recommended for advanced undergraduates planning to attend graduate school and/or those interested in teaching. Written permission of instructor required. (OC).
Prerequisite(s): (NSCI 390 or EDD 390) and PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 220 or COMP 280 or COMP 270)

EDD 467  
Practicum in Reading Instruct  
1 Credit Hour
A required supervised field experience related to the teaching of reading in the elementary and/or K-8. Involves a minimum of 45 clock hours of work and observation in a supervised classroom setting. Techniques learned in EDD 468 and EDD 471 will be applied to reading and language arts instruction. Official admission to and good standing in teacher certification program required. TB clearance, criminal background check, and physician's statement of good health required.
Prerequisite(s): EDD 468 and PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s):
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 468  
Teach Read/Lang Arts- Elem Grd  
3 Credit Hours
Acquaints the student with theory, methods, materials, and research related to the teaching of reading and other communications skills in the elementary and/or K-8. Includes classroom activities designed to strengthen skills in reading comprehension, word recognition, word attack, and the related language arts. Official admission to and good standing in the School of Education certification program are required.
Prerequisite(s): PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s):
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 469  
Reading in the Content Areas  
3 Credit Hours
Emphasis on developmental and remedial reading activities at the middle grades and the secondary level: diagnosis, testing, and materials; reading in the content subjects; study habits; independent reading activity; exemplary programs. Some attention will be given to related problems in the teaching of written composition. Official admission to and good standing in the School of Education certification program are required. For graduate credit, elect EDD 569.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 471  
Reading Instr: Models and Meth  
3 Credit Hours
Various approaches to reading instruction are required. The teaching of reading/study skills in content areas and an introduction to different forms of testing will be addressed. Students will be required to complete a reading tutorial in meeting the needs of an elementary student. Not open to students who have taken EDD 472, EDD 532, or EDD 570. Official admission to and good standing in SOE certification program are required.
Prerequisite(s): EDD 468 and PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 467
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 474  
Environmental Education  
2 to 3 Credit Hours
An analysis of environmental education at both the elementary and secondary school level particularly stressing the environment as a teaching resource. Community resources as they relate to environmental education also are investigated.
Prerequisite(s): PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior

EDD 480  
Teach of Sci in the Second Grd  
2 to 3 Credit Hours
A survey of the place of science in the secondary school curriculum, an analysis of environmental education at both the elementary and secondary level particularly stressing the environment as a teaching resource. Community resources as they relate to environmental education also are investigated.
Prerequisite(s): PII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 481
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
EDD 481 Practicum in Science: Second Grd 1 Credit Hour
A supervised field experience related to the study of science in the secondary grades involving a minimum of 45 clock hours of observation and work spread over a semester in a school setting. Official admission to and good standing in teacher certification program are required.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 270)
Corequisite(s): EDD 480
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Certification only or Junior or Senior

EDD 482 Teach of Sci in Second Grd II 3 Credit Hours
This course builds upon the concepts and skills developed in EDD 480 as students learn to become effective, reflective science teachers. Students will learn multiple strategies for effective lesson planning, teaching, and assessment in science. Science, technology, engineering, and mathematics (STEM) and integration of reading/writing strategies will be emphasized throughout the course. Students cannot receive credit for both EDD 482 and EDD 582. Students seeking graduate credit should enroll in EDD 582.
Prerequisite(s): EDD 480 and EDD 481
Restriction(s):
Can enroll if Class is Post-baccalaureate Certification only or Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EDD 483 Wkshp: Sci Teach Elem/Midd Sch 1 to 3 Credit Hours
Deals with existing and innovative science materials. Offered at various times emphasizing one or more areas from elementary and middle level science. Centers on a laboratory approach. May be elected twice for a total of six credits. (OC).
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

EDD 485 Teach Science in the Elem Grd 2 to 3 Credit Hours
Explores the objectives, methods, and instructional emphasis of elementary school science. Stresses concept development in several areas of elementary science. Provides opportunity for preparation of materials for classroom use. Official admission to and good standing in teacher certification program are required. For graduate credit, elect EDD 585.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Restriction(s):
Can enroll if Class is Post-baccalaureate Certification only or Undergrad Certification only or Junior or Senior

EDD 486 Environmental Interpretation 3 Credit Hours
Course deals with the interpretation of the environment, its characteristics, and its presentation to school groups as well as to the general public. Intended to acquaint students with a variety of skills and techniques necessary for interpreting the environment to others. Extensive use is made of the UM-D Environmental Study Area.
Restriction(s):
Can enroll if Class is Junior or Graduate

EDD 487 Practicum in Soc Stud: Sec Sch 1 Credit Hour
A supervised field experience in a selected middle or high school social studies classroom. The course requires a minimum of 45 hours of observation of an experienced teacher as well as the writing, implementation, and assessment of one or more lessons. Official admissions to and good standing in the teacher certification program in required.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 490
Restriction(s):
Can enroll if Class is Post-baccalaureate Certification only or Undergrad Certification only or Junior or Senior

EDD 489 Practicum in Soc Stud: Sec Sch 1 Credit Hour
A supervised field experience in a selected middle or high school social studies classroom. The course requires a minimum of 45 hours of observation of an experienced teacher as well as the writing, implementation, and assessment of one or more lessons. Official admissions to and good standing in the teacher certification program in required.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 489
Restriction(s):
Can enroll if Class is Post-baccalaureate Certification only or Undergrad Certification only or Junior or Senior

EDD 490 Tch of the Soc Stud in Sec Sch 2 to 3 Credit Hours
This course examines theoretical and practical approaches to teaching social studies at the secondary level. Students explore, develop, and evaluate instructional methods. In light of professional standards, they consider diverse strategies for teaching and assessing middle and high school students.
Prerequisite(s): PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 489
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Certification only or Junior or Senior

EDD 491 Soc Std Elem Grades Practicum 1 Credit Hour
A supervised field experience related to the methods and strategies associated with the teaching of social studies in grades K-5. This experience requires 45 clock hours of observation and participation spread over one semester.
Prerequisite(s): EXPS 282 and EXPS 283 and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (COMP 105 or COMP 110 or COMP 270 or COMP 280 or CPAS with a score of 40)
Corequisite(s): EDD 495
Restriction(s):
Can enroll if Class is Post-baccalaureate Certification only or Undergrad Certification only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDD 493 Simulation and Gaming 1 to 3 Credit Hours
This course focuses on simulation and gaming as approaches to learning which are fundamentally different from methods traditionally used in education, industry, business, and psychology. Students will have the opportunity to examine many different types of simulations and games and to participate in selected ones. They will also be able to design one for use in their own area of interest.
Prerequisite(s): EXPS 282 and EXPS 283 and PIII with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (COMP 105 or COMP 110 or COMP 270 or COMP 280 or CPAS with a score of 40)
Corequisite(s): EDD 495
Restriction(s):
Can enroll if Class is Post-baccalaureate Certification only or Undergrad Certification only or Junior or Senior
EDD 495 Social Studies in the Elem Grd 2 to 3 Credit Hours
Examination and analysis of various programs and materials currently available for teaching social studies at the elementary level. Critical investigation of new developments and trends. Opportunity is provided to experiment with various techniques and to evaluate their effectiveness. Official admission to and good standing in teacher certification program are required.
Prerequisite(s): PILL with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Restriction(s): Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 496 Second Lang Tchg: Sec Level 3 Credit Hours
An examination of current methodologies and techniques for instruction in foreign languages in grades 7-12. Emphasis will be placed on a standards-based curriculum with special attention given to the creation of learning scenarios. The use of communicative activities and the assessment of language skill areas will also be emphasized. Official admission to and good standing in teacher certification program are required.
Prerequisite(s): (FREN 301 or GER 301 or SPAN 301) and PILL with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 270 or COMP 280 or COMP 110)
Corequisite(s): EDD 497
Restriction(s): Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EDD 497 Second Lang Tchg: Sec Level 1 Credit Hour
A required supervised field experience related to the teaching of a foreign language in grades 7-12. Involves a minimum of 45 clock hours of work and observation spread over one semester in a supervised classroom setting. Methods and techniques learned in EDD 496 will be used to increase the second language proficiency of learners in grades 7-12. Official admission to and good standing in teacher certification program are required. TB clearance, physician's statement of good health, criminal background clearance, and bloodborne pathogens/infectious diseases training are required.
Prerequisite(s): (FREN 301 or GER 301 or SPAN 301) and PILL with a score of 1 and MGPA with a score of 2.75 and MIBM with a score of P and MIBR with a score of P and MIBW with a score of P and (CPAS with a score of 40 or COMP 105 or COMP 110 or COMP 280 or COMP 270)
Corequisite(s): EDD 496
Restriction(s): Can enroll if Class is Junior or Graduate

EDD 498 Writing Meth: Formal&Informal 3 Credit Hours
This course is designed for those wishing to establish or improve creative writing programs in their elementary school classrooms. Theoretical models will be discussed. Strategies and materials that facilitate the writing of prose and poetry will be emphasized.
Restriction(s): Can enroll if Class is Junior or Graduate

The following abbreviations are used to denote the frequency of offering:
- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

Edu F-Physical Education (EDF)

EDF 270 Physical Activity and Health 2 to 3 Credit Hours
Discussion of topics related to attaining a healthy lifestyle including nutrition, stress management techniques, physical training programs, cardiovascular disease, risk factors and other health-related topics.

EDF 450 Health, Nutr, & PE/Clsrm Tchrs 2 Credit Hours
Instruction and participation in health, nutrition and physical education concepts and principles as they relate to elementary school curriculum. The six-dimensional model of wellness will be applied to meet legislative goals and objectives for the various grade levels. Required for elementary education majors.
Restriction(s): Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior

EDF 455 Principles of Coaching 2 Credit Hours
Instruction in the basic principles and psychology of coaching all age groups, skill levels and genders. Emphasis will be placed on many factors which relate to success in athletic/sports, the qualities and qualifications of coaches, and the administration of programs and organized practices. For graduate credit, elect EDF 555. (OC).
Restriction(s): Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

Other Content
- An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.
**Educ K-Independent Study (EDK)**

**EDK 380 Undergraduate Reading Research** 1 to 2 Credit Hours
Permits qualified students to pursue a program of reading under the direction of a staff member selected by the student. The faculty member must agree to serve prior to the course election. May be elected twice for a total of two hours credit.

**EDK 480 Independent Action Research** 1 to 4 Credit Hours
Requires the student to initiate and pursue to completion an informal field-based research study under faculty supervision. The faculty member must agree to supervise prior to course election. May be elected twice for a total of two hours credit.

**EDK 490 Education Internship** 2 to 10 Credit Hours
This internship provides the student with opportunity for supervised, non-classroom experience in a school, college, or other educational setting. Between eight and forty clock hours of unpaid work per week, in conjunction with an arranged seminar, are required. The course may be elected twice for a total of four to ten semester credit hours.

**Other Content**

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:
- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

**EDM 405 TESOL Strategies for Classroom** 2 Credit Hours
This course examines instructional strategies and assessment for teaching English to speakers of other languages (TESOL). These strategies are intended for students who are learning English as a foreign language. This course is specifically designed for individuals planning on teaching English to children and adults in non-English speaking communities abroad.

**Restriction(s):**
Can enroll if Class is Junior

**Other Content**

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:
- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

**Educ N-Special Education (EDN)**

**EDN 227 Inclusion: Multisens/Direct Inst** 2 to 3 Credit Hours
Course addresses developing, implementing, and evaluating teaching strategies and materials that incorporate principles of direct instruction and multi-sensory activities that promote inclusion of students with special needs in general education settings, increase all students’ academic achievement, and improve social interaction among students from a wide variety of social, economic, and cultural backgrounds.

**Restriction(s):**
Can enroll if Class is Undergraduate NCFD or Undergraduate NCFD or Freshman or Sophomore or Junior or Senior

**EDN 401 Strategies for LD** 3 Credit Hours
Content includes strategies for teaching K-12 students with learning disabilities in special and regular education classes. Course addresses diagnostic-prescriptive teaching, direct instruction, and specific strategies and materials addressing each academic area. The Individualized Education Program (IEP), development of goals and objectives, linking assessment with instruction, inclusion, and generality of behavior change will also be included.

**Prerequisite(s):** EDC 401

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

**EDN 402 Socio-vocational Transitions** 3 Credit Hours
This course includes strategies that teach age-appropriate social skills to students with disabilities in a variety of social settings found in the school, home and community. This course will also focus on issues relevant to vocational and community transitions for students with disabilities. As opposed to rote learning of material the course intends to provide students with a conceptual understanding of issues related to social and vocational transitions.

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

**EDN 403 Assessment of the Learner** 3 Credit Hours
Formal and informal assessment strategies used in the identification and service of students with handicaps are described. Technical and operational aspects of standardized testing, curriculum based assessment, and informal strategies are described.

**Prerequisite(s):** EDC 401

**Corequisite(s):** EDN 404

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Junior or Senior
EDN 404 Assessment Practicum 1 Credit Hour
Clinical experiences with formal and informal assessment strategies currently used by special educators to identify and program for students with handicaps. Activities include administration, scoring and interpretation of norm- and criterion-referenced tests, Curriculum Based Assessments and informal assessment strategies. Deriving goals, objectives, activities and strategies from assessment data are also included. Must be taken with EDN 403 for the LD endorsement.
Prerequisite(s): EDC 401
Corequisite(s): EDN 403
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Sophomore or Junior or Senior
Can enroll if College is Education, Health, and Human Services
EDN 406 Collaboration in the Classroom 3 Credit Hours
Techniques for enhancing collaboration between special and regular classroom teachers of mainstreamed exceptional and low-achieving learners at all levels. Included are essential skills for managing and monitoring the learning process and maintaining collaborative partnerships. As opposed to rote learning of material, the course will provide students with a conceptual and practical understanding of issues relevant to collaboration.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Undergrad Certification only or Sophomore or Junior or Senior
Can enroll if College is Education, Health, and Human Services
EDN 408 LD Directed Teaching Seminar 2 Credit Hours
Seminar will focus on the discussion, development, and evaluation of Individualized Educational Programs, Individualized Transition Plans, and Behavior Intervention Plans for students with learning disabilities at a variety of directed teaching sites. Topics will include academic and behavior assessment and strategies, curriculum, child study teaming, service delivery options and inclusion strategies. Co-requisite: EDD 415 and EDD 413. Pre-requisite: Grade of B or better in a C401, N401, N403, N404, and N402 General Ed. Directed Teaching.
Prerequisite(s): EDC 401 and EDN 401 and EDN 403 and EDN 404 and EDN 402
Corequisite(s): EDD 413
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is Special Education
EDN 410 Intro to Cognitive Impair I 3 Credit Hours
Historical perspectives, definition, terminology, and assessment of the full spectrum of cognitive impairments are addressed. Identification of the behavioral, social, intellectual, communicative, vocational, adaptive, psychological, and educational/instructional needs of individuals with mild cognitive impairments across the lifespan.
Prerequisite(s): EDC 460
Corequisite(s): EDN 411
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services
EDN 411 Cognitive Impair Pract I 1 Credit Hour
Experience in an educational setting with students with mild cognitive impairments for no less than 45 clock hours. Activities include working with the cooperating teacher on tasks such as individual instruction, data collection, informal assessment and program implementation and evaluation of IEP goals and objectives.
Prerequisite(s): EDC 460
Corequisite(s): EDN 410
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services
EDN 412 Intro to Cognitive Impair II 3 Credit Hours
This course is an extension of introduction to Cognitive Impairments I. Identification of the behavioral, social, intellectual, communicative, vocational, adaptive, psychological and educational/instructional needs of individuals with moderate and severe cognitive impairments across the lifespan.
Prerequisite(s): EDC 460 and EDN 401 and EDN 411
Corequisite(s): EDN 413
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services
EDN 413 Cognitive Impair Pract II 1 Credit Hour
Experience in an educational setting with students with moderate and severe cognitive impairments for no less than 45 clock hours. Activities include working with the cooperating teacher on tasks such as individual instruction, data collection, informal assessment and program implementation and evaluation of IEP goals and objectives.
Prerequisite(s): EDC 460 and EDN 410 and EDN 411
Corequisite(s): EDN 412
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services
EDN 414 Assessment Cognitive Impair 3 Credit Hours
Course discusses different theories of intelligence and intellectual development. Students learn to identify and describe different instruments used to assess the intellectual, adaptive behavior, academic, language/communication, vocational and social needs of students with mild, moderate and severe cognitive impairments.
Prerequisite(s): EDC 460 and EDN 410 and EDN 411 or EDN 412 and EDN 413
Corequisite(s): EDN 415
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services
EDN 415  Assessment Pract Cogn Impair  1 Credit Hour
Clinical experience with formal and informal assessment strategies currently used by special educators to identify needs and develop programming for students with mild, moderate and severe cognitive impairments. Activities include practicing observational techniques, completing, analyzing and interpreting various formal and informal assessments, including norm referenced and criterion referenced tests, achievement tests, rating scales and checklists.
Prerequisite(s): EDC 460 and EDN 410 and EDN 411 and EDN 412 and EDN 413
Corequisite(s): EDN 414
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDN 416  Strategies Cognitive Impair I  3 Credit Hours
Course content includes strategies for teaching students with mild cognitive impairments. Strategies for effective teaching and the development of instructional materials and learning environments for students with mild cognitive impairments is addressed. Functional academics, positive behavior supports, community based instructional support, self-determination, the use of instructional technology and supports, communication skills, adaptive behavior skills are covered within the context of the IEP, development of goals and objectives linking assessment with instruction, designing effective learning environments, and integrating students with mild cognitive impairments into the least restrictive environment.
Prerequisite(s): EDC 460 and EDN 410 and EDN 411 and EDN 414 and EDN 415
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDN 417  Strategies Cognitive Impair II  3 Credit Hours
Course content includes strategies for teaching students with moderate and severe cognitive impairments. Strategies for effective teaching and the development of instructional materials and learning environments for students with moderate and severe cognitive impairments are included. Functional academics, positive behavior supports, community based instructional support, self-determination, the use of instructional technology and supports, communication skills, adaptive behavior skills are covered within the context of the IEP, development of goals and objectives linking assessment with instruction, designing effective learning environments and integrating students with moderate and severe cognitive impairments into the least restrictive environment.
Prerequisite(s): EDC 460 and EDN 412 and EDN 413 and EDN 414 and EDN 415
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDN 418  Dir Teach I: Mild CI  2 Credit Hours
Field experience with students with mild cognitive impairments in classroom settings. Experiences include the delivery of direct instruction in functional academic, community based skills, functional living skills, and communication skills. Academic and behavioral assessments leading to the development and implementation of IEPs and BIPs are included. Students will also engage in observations, small and large group instruction, curriculum development, program development and implementation and participation in the EIP process. Collaboration with other classroom teachers in general and special education settings, and other activities under the on-site supervision of a certified CI teacher and university field supervisor. Directed teaching also includes weekly seminar.
Prerequisite(s): EDC 460 and EDN 410 and EDN 411 and EDN 414 and EDN 415 and EDN 416
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDN 419  Dir Teach II: Mod/Sev CI  2 Credit Hours
Field experience with students with moderate and severe cognitive impairments in classroom settings. Experiences include the delivery of direct instruction in functional academic, community based skills, functional living skills, and communication skills. Academic and behavioral assessments leading to the development and implementation of IEPs and BIPs are included. Students will also engage in observations, small and large group instruction, curriculum development, program development and implementation and participation in the EIP process. Collaboration with other classroom teachers in general and special education settings, and other activities under the on-site supervision of a certified CI teacher and university field supervisor. Directed teaching also includes weekly seminar.
Prerequisite(s): EDC 460 and EDN 410 and EDN 411 and EDN 414 and EDN 415 and EDN 417
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDN 420  Intro to Emotional Impairments  3 Credit Hours
Identification of the behavioral characteristics and instructional needs of children with emotional impairments/behavior disorders. Causes of emotional impairments and environmental influences as well as strategies for identification, assessment and interpreting such instruments will be addressed. Finally, instructional strategies for students with emotional impairments will be described and practiced through classroom activities.
Corequisite(s): EDN 421
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Junior or Senior
Can enroll if College is Education, Health, and Human Services
EDN 421  Practicum at Psych Facility  1 Credit Hour
Experience in a clinical setting with emotionally impaired individuals, for no less than 45 clock hours. Activities include working with cooperating teacher on tasks such as individual tutoring, data collection, informal assessment, interpretation of psychological data, and program implementation and evaluation. Also included will be the development of individualized instructional strategies, classroom activities, the use of adaptive technology, interdisciplinary approaches and the development of relevant goals and objectives for emotionally impaired students.

Corequisite(s): EDN 420
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDN 423  Strat: Emotional Impairments  3 Credit Hours
Course content includes strategies for teaching students with emotional impairments, including instruction on reading and mathematics. Course also includes strategies to deal with hyperactive behavior, aggressive behavior, socially withdrawn behavior, and delinquency. Strategies for effective teaching and the development of instructional materials and learning environments for students with emotional impairments are included. The Individualized Education Program (IEP), development of goals and objectives, linking assessment with instruction, and integrating students with emotional impairments into the regular classroom will also be covered.

Prerequisite(s): EDN 320
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDN 425  Eco-Behavioral Assessment  3 Credit Hours
Formal and informal assessment strategies used in identifying and serving students with emotional impairments are described. Assessment strategies include eco-behavioral assessment, functional analyses, naturalistic observation techniques, norm-referenced and criterion-referenced tests, interviewing, achievement test, and curriculum based assessment. Technical aspects of assessment, interpretation of data, and diagnostic strategies are also addressed, as well as using adaptive technology and assessment instruments to facilitate more effective individualized instruction for students with emotional impairments. Finally, integrating assessment results from other disciplines will also be addressed.

Prerequisite(s): EDN 320
Corequisite(s): EDN 426
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDN 426  Eco-Behav Assessment Pract  1 Credit Hour
Clinical experiences with formal and informal assessment strategies currently used by special educators to identify and program for students with emotional impairments. Activities include practicing observation techniques, and completing and analyzing eco-behavioral assessments and functional analyses. Also included are administration, scoring, and interpretation of norm-referenced and criterion-referenced tests, curriculum based assessments, achievement tests, rating scales and checklists, and informal assessment strategies. Practicum activities will also focus on using assessment results in curriculum design and instructional strategies to meet the individualized instructional needs of EI students.

Corequisite(s): EDN 425
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Junior or Senior
Can enroll if College is Education, Health, and Human Services

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Educ T-Education Technology (EDT)**

EDT 210  Tech in Elementary Education  3 Credit Hours
Introduces students to the application of technology in elementary education. Students experience and become familiar with advanced learning technology tools; learn to use telecommunication tools for emailing, participating in educational listserv and online discussion groups, and accessing electronic resources on the WWW; learn to use productivity tools for word processing, drawing, painting and digital editing, spreadsheet application, database management, and multimedia presentation; learn to use educational multimedia for visual thinking, creativity, and multimedia authoring, learning to practice ethical and legal use of technology resources, and explore the use of such technology tools in the elementary classroom.

Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior
Can enroll if College is Education, Health, and Human Services
EDT 211  Design Tech-Based Learn Solutn  3 Credit Hours
EDT 211 provides students with the opportunity to design and develop technology-based learning solutions for real-world instructional problems. Students will identify an instructional problem, collect data to assess relevant needs of an authentic population of learners and work collaboratively to create learning solutions for face-to-face, blended and/or online environments. Students will also become proficient in the operation of various pieces of hardware and software and develop skills for evaluating and integrating technology into the different learning environments.

Restriction(s):
Can enroll if College is Education, Health, and Human Services
Can enroll if Class is Junior or Senior

EDT 210 or EDT 211

EDT 401  Res, Trends,&Issues in Ed Tech  3 Credit Hours
This course is designed to acquaint the students with research and issues facing education in the digital era. This course will look at the wide range of developments in technology and investigate the trends that are impacting the field of educational technology. Students explore and analyze key issues related to technology in the classroom of the twenty-first century. (YR)

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDT 402  Survey of Educ Tech Tools  3 Credit Hours
This course provides students with a general overview of relevant educational software and hardware technologies as well as web-based digital resources that can be used in instructional settings. The students will learn how to identify, select, and integrate a broad range of technologies into different learning environments. Students will also create several technology-based instructional products using various tools, applications, and authoring environments. (YR)

Restriction(s):
Can enroll if Class is Professional Development or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EDT 410  Teaching with Technology  3 Credit Hours
Provides student teachers/interns with improved knowledge, skills, and confidence integrating advanced technology tools into the teaching and learning process in meaningful ways. Student teachers/interns design and teach multi-week units of instruction where student learning is enhanced with advanced technology tools. Student teachers/interns create electronic portfolios to present their achievement in teaching with technology demonstrating a superior level of achievement on the Proposed Standard with Related Indicators for the Achievement of Entry-Level Skills in Information Technology for all Michigan Teachers. (F,W,S).

Prerequisite(s): EDT 210 or EDT 211

EDT 414  Application of Instrl Design  3 Credit Hours
The course provides students with necessary skills to apply Technological Pedagogical Content Knowledge (TPCK) instructional design process in a specific subject area. (YR)

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Education, Health, and Human Services

EDT 420  Intro Teaching Learning Online  3 Credit Hours
This course will introduce students to best practices in the design, creation and implementation of instructional materials in an online environment. Students will create and implement several instructional activities and assessments in blended, hybrid and online environments. (YR)

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDT 422  Educating the Digital Learner  3 Credit Hours
Students are introduced to Universal Design for Learning (UDL) theory and how to apply it to learning activities in the blended, hybrid and online environment. Emphasis is placed on learning how to make accommodations for students in the online environment as well. Students will also learn to critically assess different approaches to online instruction. (YR)

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

EDT 430  Assistive Technology  3 Credit Hours
This course is designed as an introductory course in assistive technology (AT) including the history, relevant legislation and development of assistive technology. Students will be introduced to key AT categories by function including high tech and low tech assistive hardware, software and mobile devices to increase learning opportunities for individuals with disabilities. (YR)

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Electrical & Computer Eng (ECE)

ECE 210  Circuits  4 Credit Hours
Fundamental laws, electrical elements and sources, energy and power. DC analysis of linear circuits. Node and mesh analysis. Operational amplifiers and op-amp circuits, Thevenin and Norton theorems. Sinusoidal steady-state response and the phasor concept. Introductory concepts on complex frequency, average power in AC circuits. Transient responses. Three lecture hours per week and one three-hour laboratory per week.
Prerequisite(s): (MATH 116 and PHYS 151* or MPLS with a score of 215)
Corequisite(s): ECE 210L

ECE 270  Computer Methods in ECE I  4 Credit Hours
Covers structured and object-oriented computer programming concepts in the context of the C/C++ programming language and engineering applications. Four lecture hours per week with programming assignments.
Prerequisite(s): ENGR 100

ECE 273  Digital Systems  4 Credit Hours
Introduction to digital logic. Topics include numbers and coding systems; Boolean algebra with applications to logic systems; Karnaugh and Quine-McCluskey minimization; combinatorial logic design; flip-flops; sequential network design; and design of digital logic circuits. Three lecture hours per week and one three-hour laboratory per week.
Prerequisite(s): ENGR 100
Corequisite(s): ECE 273L

ECE 276  Discrete Math in Computer Engr  4 Credit Hours
An introduction to fundamental concepts of discrete mathematics for computer engineering. Topics will be chosen from set theory, partially ordered sets, lattices, Boolean algebra, semi-groups, rings, graphical representation of algebraic systems, graphs, and directed graphs. Applications in various areas of computer engineering will be discussed.
Prerequisite(s): (MATH 116 or MPLS with a score of 215)

ECE 299  Internship/Co-Op  1 Credit Hour
This is a Cooperative Education course. Students wishing to experience a work experience before graduation may elect to participate in the Cooperative Education Program (minimum of two terms). (F, W, S).
Restriction(s):
Can enroll if Class is Junior or Senior

ECE 300  Signals and Systems  4 Credit Hours
Signals and systems representation and classification. Impulse response and convolution integral. Fourier analysis of continuous time signals and systems. Laplace transforms with applications to linear system analysis. Introduction to computer software for solving problems involving signals and systems. Three lecture hours and three recitation hours per week.
Prerequisite(s): ECE 210 and (MATH 217* and MATH 216 or MATH 227*)

ECE 305  Intro to Electrical Eng  4 Credit Hours
Introduction to electrical and electronic circuits, machinery, and instrumentation. Topics include Kirchoff's Laws, Thevenin and Norton theorems, sinusoidal and transient circuit analysis, numerical methods, solid state electronics, motors and generators, measuring instruments. Three lecture hours and one three-hour laboratory analysis. Not open to ECE students.
Prerequisite(s): PHYS 151 and (MATH 205 or MATH 215) and (MATH 217* or MATH 227*)
Corequisite(s): ECE 305L
Restriction(s):
Cannot enroll if Major is Electrical Engineering

ECE 3100  Data Science I  4 Credit Hours
This course provides an overview of the mathematical techniques and computer tools needed in the field of data science. The important types of problems addressed in the field of data science are rigorously formulated and analyzed, including regression, pattern recognition and classification, time series prediction, and clustering. Effective mathematical and computational solution methodologies are discussed, including exploratory data analysis, statistical methods, and machine learning. At the end of the course, the student will have an analytic and computational toolkit with which they can solve real problems and "tell a story" with data. (F)
Prerequisite(s): (CIS 1501 or CIS 150 or ECE 270) and (MATH 227 or MATH 217) and (STAT 325* or IMSE 317* or BENG 365*)
Restriction(s):
Can enroll if Level is Undergraduate

ECE 311  Electronic Circuits I  4 Credit Hours
Terminal characteristics and biasing of semiconductor diodes, bipolar and field-effect transistors, operational amplifiers. Rectifiers, amplifiers, and logic. Design projects. Three lecture hours and one three-hour laboratory per week.
Prerequisite(s): ECE 210 and CHEM 144 and (COMP 270* or COMP 106* or CPAS with a score of 40) or COMP 220* or COMP 280*
Corequisite(s):
Restriction(s):
Can enroll if Major is Computer Engineering, Robotics Engineering, Electrical Engineering

ECE 314  Filter Design  3 Credit Hours
Review of filter descriptions, transfer functions, and frequency response characteristics; first and second order passive and active filters; biquad circuits; filter transformations. Butterworth, Chebyshev, and Elliptic filters; OPAMP realization of active filters; sensitivity analysis of active circuits. Three lecture hours per week.
Prerequisite(s): ECE 311 and ECE 317

ECE 316  Computer Electronics  0 to 3 Credit Hours
Design of selected electronic circuits such as signal conditioning amplifiers. Switching and digital logic circuits, using FET and BJT devices, A/D and D/A converters. Two-hour lecture and one three-hour lab per week. (YR).
Prerequisite(s): ECE 210 and ECE 273 and (COMP 270* or COMP 106* or CPAS with a score of 40 or COMP 220*)

ECE 317  Electronic Signals and Systems  4 Credit Hours
Prerequisite(s): MATH 216 and (MATH 217* or MATH 227*) and ECE 311*
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

ECE 3171  Analog & Discrete Sig & Sys  4 Credit Hours
Signals and systems representation and classification. Impulse response and convolution integral. Laplace and Z transforms with applications to linear system analysis. Fourier series Fourier Transform and Discrete Fourier Transform, Frequency response, Filter design. Four lecture hours per week.
Prerequisite(s): MATH 216 and ECE 311* and (MATH 217* or MATH 227*)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science
ECE 319  Electromagnetic Compatibility  4 Credit Hours
Introduction, cabling, grounding, balancing and filtering, passive components, shielding, digital circuit noise and PCB layout, radiation, ESD, regulations, demos, experiments, lab projects and guest lectures. Three lecture hours and one three-hour laboratory per week.
Prerequisite(s): ECE 311

ECE 321  Electromagnetic Fields/Waves  3 Credit Hours
Vector analysis; static electric field; steady electric currents; static magnetic fields; time-varying fields and Maxwell's equations; plane electromagnetic waves. Three lecture hours per week.
Prerequisite(s): ECE 311*

ECE 329  Intro to Computer Music  4 Credit Hours
This course will introduce students to methods and technologies of computer music. The basics of digital audio will be covered, including sampling, quantization, and compression standards. Various analysis tools will be covered, including the Fourier transform and windowing techniques. Mathematical models of physical instruments will be introduced. Various sound synthesis strategies will be introduced: wave tables, additive synthesis, subtractive synthesis, frequency modulation, and granular synthesis.
Prerequisite(s): MATH 105
Restriction(s):
Can enroll if Class is Junior or Senior

ECE 347  Applied Dynamics  4 Credit Hours
Introduction to rigid, multi-body dynamics tailored to the analysis and design of linkage based robotic systems. Three dimensional kinematics, Eulerian angles, general motion of rigid bodies subjected to various forcing functions. Matrix methods, numeral and software-based problem solving. Project required. Four lecture hours per week.
Prerequisite(s): MATH 216 and MATH 217
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 351  Bio-Sensors & Instrumentation  4 Credit Hours
The course covers measurements in biological materials using a variety of sensor technologies along with electronic instrumentation design and use. Safety and FDA requirements are also presented.
Prerequisite(s): ECE 305 and (ENGR 216 or ECE 270) and MATH 216 and BIOL 103 and BIOL 140
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Arts, Sciences, and Letters or Engineering and Computer Science

ECE 361  Robotics I  4 Credit Hours
Design, construction, and testing of field robotic systems. Focus on electronics, instrumentation, and machine elements. Particular attention to modeling dynamic systems, measuring and controlling their behavior, and making decisions about future courses of action. Examples include industrial robots, service robots, mobile robots, and medical robots. Three lecture hours and one three hour laboratory per week.
Prerequisite(s): (ECE 3731 or ECE 372) and ECE 347 and IMSE 317*
Corequisite(s):
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 370  Adv Soft Techn in Comp Engr  4 Credit Hours
Advanced concepts and techniques of modular object oriented and structured programming; representative real-world computer engineering applications including data structures, search and sorting. A term project is required. Four lecture hours per week. (F,W,S).
Prerequisite(s): ECE 270 and ECE 273*

ECE 371  Information Structures  3 Credit Hours
Fundamentals of computer data structures. Introduction to abstract data types. Characteristics and implementation of structured data types including arrays, stacks, queues, linked lists, generalized lists, trees, and graphs. Algorithms and applications of data structures in sorting and searching. Considerations of algorithm efficiency and complexity. Engineering applications and design. Three lecture hours per week.
Prerequisite(s): ECE 370 or ECE 274

ECE 372  Intro to Microprocessors  0 or 4 Credit Hours
Introduction to operation, interfacing, and applications of microcomputers and microprocessor-based systems. Assembly language programming, interrupts and interfacing. Three lecture hours and one three-hour laboratory per week.
Prerequisite(s): (ECE 270 and ECE 273) or CIS 310 and (COMP 270 or COMP 106 or COMP 220 or CPAS with a score of 40)
Corequisite(s):

ECE 3731  Microproc and Embedded Sys  4 Credit Hours
This course is an introduction to the operation, interfacing, and applications of micro processor based systems, and real-time embedded system design. Topics include: microprocessor architecture, embedded C programming, real-time programming. Final project required. Three lecture hours and one three hour laboratory per week.
Prerequisite(s): (ECE 270 and ECE 273) or CIS 310
Corequisite(s): ECE 3731L
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 375  Intro to Comp Architecture  4 Credit Hours
Introduction to architecture of mini- and mainframe computers. CPU, memory, and I/O characteristics. Introduction to parallel architectures and hardware design languages. Case studies of popular computer systems and design considerations. A design project is required. Three lecture hours and one laboratory hour per week.
Prerequisite(s): ECE 270 and ECE 273 and (ECE 276* or MATH 276*) and (ECE 372* or ECE 3731*)
Corequisite(s):

ECE 3801  Intro to Signals and Systems  3 Credit Hours
Prerequisite(s): ECE 210 and MATH 216
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate
Cannot enroll if Major is Electrical Engineering
ECE 385  Elec Materials and Devices  3 Credit Hours
Introduction to properties of conductors, semi-conductors, and insulators. Definitions of stress and strain. Description of the mechanical behavior of solids. Characterization of selected materials; circuit models for resistors, capacitors, inductors, junction and field-effect transistors, etc. Three lecture hours per week.
Prerequisite(s): ECE 311* and (CHEM 144 or CHEM 134)

ECE 3851  Intro Elect Materials & Device  4 Credit Hours
Introduction to properties of conductors, semi-conductors, and insulators. Definitions of stress and strain. Description of the mechanical behavior of solids. Characterization of selected materials; circuit models for resistors, capacitors, inductors, junction and field-effect transistors, etc. Three lecture hours per week and on three-hour laboratory session.
Prerequisite(s): ECE 311* and (CHEM 134 or CHEM 144)
Restriction(s):
- Can enroll if Class is Junior or Senior
- Can enroll if Level is Undergraduate
- Can enroll if College is Engineering and Computer Science

ECE 387  Digital Forensics I  4 Credit Hours
This course takes a detailed, hands-on approach to study the procedures and techniques used to identify, extract, validate, document and preserve electronic evidence. Students completing this course will be familiar with the core computer science theory and practical skills necessary to perform basic computer forensic investigations, understand the role of technology in investigating computer-based crime, and be prepared to deal with investigative bodies at a basic level.
Prerequisite(s): (ECE 270 or CIS 200) and (ECE 370* or ECE 372* or CIS 310*)
Restriction(s):
- Cannot enroll if Class is Freshman
- Cannot enroll if Level is Graduate or Rackham
- Cannot enroll if College is Business

ECE 390  Selected Topics in ECE  1 to 3 Credit Hours
Special topics in ECE according to student's interest and availability of instructors and equipment.

ECE 399  Internship/Co-op  1 Credit Hour
A four-month professional work experience period of the Engineering Internship Program, integrated and alternated with the classroom terms.
Restriction(s):
- Can enroll if Class is Junior or Senior

ECE 411  Electronics II  4 Credit Hours
Review of solid state devices and their physical properties, introduction to the state of art devices, design of operational amplifiers, oscillators, switching and digital circuits. A project will be required. Three lecture hours per week and one three-hour laboratory per week.
Prerequisite(s): ECE 301 and ECE 311

ECE 413  Intro to VLSI Design  3 Credit Hours
Introduction to digital systems and VLSI, CMOS fabrication, layout and CMOS integrated circuits, basic principles of MOSFET theory, CMOS logic circuits, subsystem design, Architecture design and HDL, CLSI chip design, advanced topics, laboratory consist of a series of design projects. Three lecture hours per week.
Prerequisite(s): ECE 273 and ECE 311

ECE 414  Electronic Systems Design  4 Credit Hours
Review of solid state device characteristics and circuit analysis. Design of selected electronic circuits such as operational amplifiers, power amplifiers, power supplies, oscillators, switching and digital circuits to further illustrate analysis and design of representative electronic circuits using classical and computer-aided design techniques. Four lecture/laboratory per week.
Prerequisite(s): ECE 311 and (ECE 317* or ECE 371*)

ECE 415  Power Electronics  4 Credit Hours
Introduction to power electronic circuit analysis and design. Power electronic circuits, power converters, power semiconductors. Time domain analysis emphasized. A design project is required. Four lecture/laboratory hours per week.
Prerequisite(s): (ECE 317 or ECE 371) and ECE 385

ECE 420  EMC Measurement and Testing  3 Credit Hours
Introduction to EMC measurements, RF measurement fundamentals, EM waves, radiation mechanisms, measurement and measurement systems, screened rooms, open field test sites, practical measurements, conducted emission measurements, radiated emission measurements, radiated immunity, conducted immunity and electrostatic discharge.
Projects will be assigned. (YR).
Prerequisite(s): ECE 319

ECE 426  Multimedia Forensics  4 Credit Hours
The objective of this course is to introduce current state-of-the-art in digital multimedia editing, its impacts on multimedia tampering, and multimedia forensics techniques to uncover inconsistencies due to tampering. This course will cover existing digital multimedia tampering techniques such as copy-move, cut-and-paste, etc. and digital multimedia tamper detection techniques. The course will also cover covert communication methods such as steganography and covert channel detection method steganalysis. This course will cover the limitations of existing state-of-the-art in multimedia forensics. Hands-on experience will be provided in various aspects of multimedia tampering and analysis through the numerous assignments and projects. Three lecture hours per week and one three-hour laboratory per week. (F)
Prerequisite(s): (ECE 387 or CIS 387) or CIS 447 or ECE 317
Restriction(s):
- Can enroll if Class is Junior or Senior
- Can enroll if Level is Undergraduate
- Can enroll if College is Engineering and Computer Science

ECE 427  Digi Content Protec  4 Credit Hours
The objective of this course is to introduce current techniques information security in general and multimedia security in particular. This course will cover existing information hiding techniques such as digital watermarking, steganography, and fingerprinting. The course will also cover conventional digital content protection methods such as cryptography. This course will cover the pros and cons of conventional and non-conventional digital content protection methods and associated design issues to give the student hands-on experience in various aspects of information security and analysis through the various assignments and projects. (W)
Prerequisite(s): (ECE 387 or CIS 387) or CIS 447 or ECE 317
Restriction(s):
- Can enroll if Class is Junior or Senior
- Can enroll if Level is Undergraduate
- Can enroll if College is Engineering and Computer Science
ECE 428 Cloud Computing 3 Credit Hours
Cloud computing represents the emerging Internet-based services/platforms with elastic and scalable computation powers operating at costs associated with service. Topics may include advanced web technologies (AJAX and Mashup), distributed computing models and technologies (Hadoop and MapReduce), Infrastructure-as-a-Service (IaaS), Software as a Service (SaaS), Platform-as-a-Service (PaaS), virtualization, parallelization, security/privacy, and other issues in cloud computing. This course will also explore the current challenges facing cloud computing. Course work will include homework assignments, presentations and a term project. Students cannot take both ECE 428 and ECE 528 for degree credit. Three lecture hours per week.
Prerequisite(s): ECE 270
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Computer & Information Science, Computer Engineering, Electrical Engineering, Industrial & Systems Engin, Software Engineering, Mechanical Engineering

ECE 431 Electrical Eng Design 4 Credit Hours
The course is conducted as a guided project design course with the class divided into teams and assigned a specific design project. Periodic progress reports are submitted during the term. A final written report and an oral presentation including demonstration are required at the end of the term. Cost analysis, evaluation of design alternatives and application of engineering principles are emphasized. Two scheduled contact hours and six hours open laboratories per week.
Prerequisite(s): ECE 311 and ECE 373 and ECE 493*

ECE 432 Electrical Eng Design 6 Credit Hours
The course is conducted as a guided project design course over a two-semester period with the class divided into teams and assigned a specific design project. Periodic progress reports are submitted during the term. A final written report and an oral presentation including demonstration are required at the end of the term. Cost analysis, evaluation of design alternatives and application of engineering principles are emphasized. Two scheduled contact hours and six hours open laboratories per week.
Prerequisite(s): ECE 311 and ECE 372 and ECE 493*

ECE 433 Intr to Multimedia Technologies 4 Credit Hours
This course will introduce students to basic terminology and methods of multimedia. Basic concepts of digital audio will be reviewed, including frequency, sampling, and popular compression schemes. Concepts of digital images will be introduced, such as resolution, color theory, and compression formats. Basic concepts of digital video and animation will be introduced. Relevant web technologies will be reviewed. Four lecture hours per week.
Prerequisite(s): ECE 311 or ECE 370
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

ECE 434 Machine Learning in Engin 4 Credit Hours
Introduce fundamental theories and basic techniques in machine learning with an emphasis on engineering applications. Topics include learning concepts, search algorithms, neural networks, fuzzy learning, paradigms for problem solving using machine learning. (F, W).
Prerequisite(s): ECE 370
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

ECE 435 Intro to Mobil/Smrt Dev & Tech 4 Credit Hours
This class will introduce students to the technology used in mobile-smart devices and mobile communication networks. Various hardware and software aspects will be introduced, with particular emphasis on the constraints intrinsic to such systems. Students will get an overview of various mobile operating systems and how to develop software for mobile devices. Four lecture hours per week.
Prerequisite(s): ECE 3731
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Electrical Engineering, Computer Engineering, Software Engineering

ECE 436 Elec Machines & Hybrid Drives 4 Credit Hours
This is an introductory course on electric machines and drive systems and their application in EV, HEV, PHEV and FCV powertrains. The objectives are to familiarize the students with the basic concepts of electromechanical energy conversion and electric drive systems. Students are expected to be able to analyze and design electric drive systems for automotive powertrain applications. The topics covered in this course include DC machines, induction machines, permanent magnet synchronous machines, and switched reluctance motors and drives. Case studies in automotive applications such as electric and hybrid drivetrains will be discussed. Four lecture hours per week.
Prerequisite(s): ECE 311
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Software Engineering, Computer Engineering, Electrical Engineering

ECE 4361 Elec Machines and Drives 4 Credit Hours
This is an introductory course on electric machines and drive systems and their application in HEV/PHEV powertrain and other industrial and residential systems. The objectives are to familiarize the students with the basic concepts of electromechanical energy conversion and drive systems. Students are expected to be able to analyze and design electric drive systems for automotive, industrial, and residential applications. The topics covered in this course include DC machines, induction machines, permanent magnet synchronous machines, and switched reluctance motors and drives. Case studies in automotive applications such as electric and hybrid drivetrains, industrial and residential electric variable speed drive systems, will be discussed. Students cannot take both ECE 436 and ECE 4361 for credit. Four lecture hours per week.
Prerequisite(s): ECE 311
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Software Engineering, Computer Engineering, Electrical Engineering

ECE 437 Web Engr: Prin & Tech 4 Credit Hours
Advanced concepts and techniques of web technology, focusing on interactive applications; real-world web engineering applications including data persistence, web security, hardware/software issues and asynchronous client/server communication. A term project is required. Four lectures per week.
Prerequisite(s): ECE 311 or ECE 370
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Electrical Engineering, Computer Engineering, Software Engineering
ECE 443  Intr to Electric Power Systems  3 Credit Hours
This course will introduce students to basic methods of electric power systems. Topics include AC circuits, phasors, complex power and complex impedance, transformers, per unit system, transmissions lines, power flow, economic dispatch, real and reactive power control, symmetric and unsymmetric faults, transient stability, relaying and protection. Three lecture hours per week.
Prerequisite(s): ECE 317 or ECE 3171

ECE 4431  Vehicular Pwr Sys & Loads  4 Credit Hours
This is an introductory course on power systems and load analysis with focus on automotive applications. The objectives are to familiarize the students with the basic principles and concepts of vehicular power systems and loads. Students are expected to be able to analyze and design basic vehicular power systems. The topics covered in this course include an overview of power systems, vehicular power system architecture, DC and AC power grid in vehicular systems, power system stability, reliability, reactive power control, load flow analysis, short circuit analysis, and vehicular power system protection. Four lecture hours per week.
Prerequisite(s): ECE 317 or ECE 3171
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science

ECE 4432  Renewable Elec Pwr Sys  4 Credit Hours
This course is an introduction to traditional power grids as well as renewable electric power systems. This course covers long-distance transmission of electric power with emphasis on admittance and impedance modeling of components and systems, complex power-flow studies, symmetrical and unsymmetrical fault calculations, economic operation of large-scale generation and transmission systems, an overview of emerging renewable energy technologies (e.g. wind and solar) and the impact of grid integration of renewable energy on power grids. Students cannot take both ECE 4431 and ECE 4432 for credit. Four lecture hours per week.
Prerequisite(s): ECE 3171
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Computer & Information Science, Industrial & Systems Engin, Software Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering

ECE 446  Electromechanical Energy Conv  4 Credit Hours
Introduces fundamental concepts and specifications of electromechanical energy conversion: AC and DC machines drive, electric and magnetic storage and transfer, transformer, and performance analysis of AC and DC machines. The topics include principles of energy conversion, permanent magnet synchronous machines, induction machines, and DC machines. The lab projects for the course will focus on modeling, evaluation, and practice of AC and DC machine drives based on computer simulation and DSP based experiments; transient and dynamic analysis; linearization and small signal analysis of machines. Four lecture/laboratory hours per week.
Prerequisite(s): ECE 311 and (ECE 317* or ECE 3171*)

ECE 450  Analog and Digital Comm Sys  4 Credit Hours
Topics include introduction to communication systems, base band communications, sampling theorem, amplitude and frequency modulation system design, statistical analysis of error and performance, digital modulation of analogy signals, digital communication and digital modulation schemes, random processes and applications in digital communications, and noise analysis, optimal receiver. Four lecture hours per week.
Prerequisite(s): (ECE 317 or ECE 3171) and IMSE 317

ECE 451  Signal Detection  3 Credit Hours
Introduction to signal detection, parameter estimation and information extraction theory and its application to communication systems. Subject areas covered within the context of a digital environment are decision theory, detection and estimation of known and random signals in noise, adaptive recursive digital filtering, optimal linear filtering and pattern recognition. Three lecture hours.
Prerequisite(s): ECE 450

ECE 452  Probabilistic Meth/Signal Aly  3 Credit Hours
Introduction to probability, random processes, correlation functions, and spectral density. Response of linear systems to random inputs. Applications in the field of communications.
Prerequisite(s): ECE 300

ECE 454  Intr to Modern Wireless Comm  3 Credit Hours
This course provides an introduction to the fundamentals of modern wireless communication. The focus of this course will be on the (i) basic signal propagation issues and channel impairments, (ii) modulation schemes and bandwidth/power trade-offs, and (iii) overcoming channel impairment using equalizers, diversity and channel coding. Additionally case studies will examine current wireless LANs and cellular system. Three Hours of lecture per week.
Prerequisite(s): ECE 450 or ECE 471
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 456  Intro to Electro-optics  3 Credit Hours
Laser sources, detectors, imaging systems, optical signal processing, illumination and image acquisition, triangulation, and fiber optics. Three one-hour lecture periods.
Prerequisite(s): ECE 311 and ECE 321

ECE 460  Automatic Control Systems  4 Credit Hours
Modeling and response of dynamic systems. Transfer functions, poles and zeros and their significance to transient and steady state response of feedback systems. Analysis of stability of closed-loop systems. Steady state errors and transient performance of closed-loop systems. Design of feedback control systems by root locus techniques and by frequency domain methods. Laboratory projects include modeling, controller design, controller realization, system performance evaluation, and simulation studies. Three lecture hours and one three hour laboratory per week.
Prerequisite(s): ECE 317 or ECE 3171
Corequisite(s): ECE 460L

ECE 464  Robotics  4 Credit Hours
Prerequisite(s): (ECE 300 or ECE 365) and ME 265
ECE 4641  Robotics II    4 Credit Hours
This is the second of a two-course sequence introducing foundational theory and applications of robotics engineering. The topics of this course include embedded computing, locomotion, localization, dead reckoning, inertial sensors and perception, navigation, multi-robotics systems, and human-robot interaction, and complex response processes. Three lecture hours and one three hour laboratory per week.
Prerequisite(s): ECE 3641
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 465  Digital Control Design and Imp    4 Credit Hours
Discrete model of a continuous-time system. Differential equations and Z-transforms. Similarities and differences between discrete-time and continuous-time models. Translation of analog designs to digital designs. State-space methods including state feedback and observers. Hardware limitations and implementation issues. Four lecture/laboratory hours per week.
Prerequisite(s): ECE 460

ECE 467  Digital Forensics II    4 Credit Hours
This course is a continuation of Digital Forensics I and will focus on Internet Forensics. Students will examine in-depth concepts in Internet evidence collection and preservation, as well as applications of contemporary commercial forensic investigative software.
Prerequisite(s): (ECE 387 or CIS 387) and (ECE 471* or CIS 427*)
Restriction(s):
Cannot enroll if Class is Freshman
Cannot enroll if Level is Rackham or Graduate
Cannot enroll if College is Business

ECE 470  Computer Int and Data Comm    4 Credit Hours
Hardware and software techniques used in interfacing between computers and other computers or devices. Analog and digital techniques. Parallel and serial communications. Popular communication protocols. Error detection and correction. Lab project involves interfacing and communicating with a microprocessor.
Prerequisite(s): ECE 372

ECE 471  Comp Networks/Data Comm    4 Credit Hours
Hardware and software techniques used in interfacing between computers and other computers or devices. Data transmission techniques and protocols. Introduction to popular local area network protocols. Forward Error Control Techniques and Data Compression. Introduction to wireless communications with focus on major challenges and obstacles and the cellular phone infrastructure. Term projects involve developing a data link layer protocol for interfacing and communication with microprocessors. Four lecture hours per week.
Prerequisite(s): IMSE 317 and (ECE 372 or ECE 3731)

ECE 473  Embedded System Design    4 Credit Hours
This course studies the issues dealing with real-time embedded system design. Topics include: microprocessor architecture, assembly language, real-time programming, space and time limitations, relations between ANSI C Compiler output and assembly language, compiler linkers and using a system development package for C programming. (F,W,S).
Prerequisite(s): ECE 372
Corequisite(s): ECE 3641

ECE 474  Compiler Design    3 Credit Hours
Principles of language compilation. Introduction to formal languages. Lexical analysis, top-down and bottom-up parsing, code generation and optimization. Error handling and symbol table management. Run-time storage management. Programming language design. Introduction to compiler-writing tools. A software design project is required. Three lecture hours per week.
Prerequisite(s): ECE 370

ECE 475  Comp Hardware Org/Design    4 Credit Hours
Design methodology, performance analysis using probability and statistic methods, hardwired and microprogramming in CPU design, hardware design languages and memory design. Advanced concepts in computer architecture. A design project is required. Three lecture hours per week and one three-hour laboratory per week.
Prerequisite(s): ECE 375

ECE 476  Intro to Parallel Processing    3 Credit Hours
Advances in computer architecture, parallel structures, performance evaluation, memory bandwidth considerations, processing bandwidth, communication and synchronization. A design project is required. Three lecture hours per week.
Prerequisite(s): ECE 375

ECE 477  Operating Systems    4 Credit Hours
Introduction to computer operating systems. Process management, threads, CPU scheduling, memory management, process synchronization, file systems and I/O devices. Selected advanced topics, e.g., distributed systems, deadlock, I/O, job scheduling, and performance analysis using queueing models, will be introduced. Case studies of modern operating systems. A design project is required. Four lecture hours per week.
Prerequisite(s): ECE 370 and IMSE 317

ECE 478  Artificial Intelligence    3 Credit Hours
Basic concepts and methodology of artificial intelligence from a computer engineering perspective. Emphasis is placed on the knowledge representations, reasoning and algorithms for the design and implementation of intelligent systems. Introduction to an AI language and representative intelligence systems. A design project is required. Three lecture hours per week.
Prerequisite(s): ECE 370

ECE 479  Introduction to Machine Vision    4 Credit Hours
Prerequisite(s): (ECE 317 or ECE 3171) and (MATH 217 or MATH 227)
Corequisite(s):

ECE 488  Introduction to Machine Vision    4 Credit Hours
Applications to machine vision. Representative topics are: optics and lighting, sensor characteristics, image acquisition, image analysis, segmentation, connectivity, shape description, hardware for vision applications, software considerations, applications including automatic inspection and metrology. Open lab and project will be required.
Prerequisite(s): ECE 270
Restriction(s):
Can enroll if Class is Senior
ECE 4881 Introduction to Robot Vision 3 Credit Hours
This course introduces the theories and modern technologies in robot vision. Topics include sensors, image analysis, region and segmentation, object recognition, stereo vision, optical flow, color image, object tracking and applications. Students cannot receive credit for both ECE 4881 and ECE 588. Three lecture hours per week.
**Prerequisite(s):** ECE 270
**Restriction(s):**
- Can enroll if Class is Junior or Senior
- Can enroll if Level is Undergraduate
- Can enroll if College is Engineering and Computer Science

ECE 490 Selected Topics in Elec Engin 1 to 3 Credit Hours
Advanced or applied topics in electrical engineering offered according to student's interest and availability of instructors and equipment. Lecture hours, laboratory, and/or computation period to be arranged.

ECE 491 Directed Studies 1 to 4 Credit Hours
Student in consultation with a faculty advisor will prepare a proposal in sufficient detail describing a subject topic to be studied. The proposal will be subject to approval by the department. A formal written and oral evaluation of the work performed are required for successful completion. Lecture hours, laboratory, and/or computation periods to be arranged.
**Restriction(s):**
- Can enroll if Class is Senior or Graduate

ECE 492 Directed Research 1 to 4 Credit Hours
Student in consultation with a faculty advisor will prepare a proposal in sufficient detail describing a research problem to be studied. The proposal will be subject to approval by the department. A formal written and oral evaluation of the research performed are required for successful completion. Lecture hours, laboratory, and/or computation period to be arranged.
**Restriction(s):**
- Can enroll if Class is Senior or Graduate

ECE 493 Design Factors in Eng 2 Credit Hours
This course is comprised of a series of lectures on the subject of design. It will promote awareness of such factors as literature review, performance specifications, design considerations, product liability, standards and ethics, professional registration codes, patents and copyrights, packaging, documentation and report preparation. Two lecture hours.
**Restriction(s):**
- Can enroll if Class is Senior or Graduate

ECE 495 Micro Systems Design 4 Credit Hours
Course content includes discussion and laboratory experience on a number of interfacing topics (timing, serial and parallel communication, ADC/DAC, control loop) and the preparation of a major report on a design topic approved by the course instructor. Team design projects may involve either software or hardware, or both. Two lecture hours and two three-hour laboratories per week.
**Prerequisite(s):** ECE 373 and (ECE 311 or ECE 316)

ECE 4951 Sys Design and Microcontrollers 3 Credit Hours
Techniques for interfacing actuators and sensors to computers with emphasis on the use of a variety of microprocessors and a broad range of sensors. Topics include introduction to small microprocessors such as PIC16, PIC18, small systems such as opic, basicx as well as using a PC as a controller. Control of motors and other actuators using optoisolators and discrete electronics, use of H-bridges. Interfacing sensors that provide different encoding data, such as analog signals, digital communication using I2C protocol, handshake I/O, pulse width encoding. Interfacing to wireless communication using RF or IR. Includes laboratory experiments, individual midterm project and a final team project. Three lecture hours per week. (F,W)
**Prerequisite(s):** ECE 311 and (ECE 372 or ECE 373)

ECE 498 Senior Engineering Design 3 Credit Hours
This course is conducted as a guided project design course over a two-semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, evaluation of design alternatives and application of engineering principles will be emphasized. A series of lectures on design issues will be presented in the first semester.
**Prerequisite(s):** (ECE 311 or ECE 316) and ECE 373

ECE 4981 Electrical Engineering Des I 2 Credit Hours
This course is conducted as a guided project design course over a two semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized. A series of tutorials will be presented to provide student teams with insight into important system level considerations and trade offs.
**Prerequisite(s):** (COMP 270 or COMP 106 or COMP 220 or COMP 280) and (ECE 317 or ECE 3171) and (ECE 372 or ECE 3731) and (ECE 414 or ECE 415 or ECE 450 or ECE 460 or ECE 480 or ECE 4951)

ECE 4982 Computer Engineering Des I 2 Credit Hours
This course is conducted as a guided project design course over a two semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized. A series of tutorials will be presented to provide student teams with insight into important system level considerations and trade offs.
**Prerequisite(s):** (COMP 270 or COMP 106 or COMP 220 or COMP 280) and (ECE 372 or ECE 3731) and ECE 375 or (ECE 471 or ECE 473 or ECE 475 or ECE 478)
**Restriction(s):**
- Can enroll if Class is Senior
- Can enroll if Level is Undergraduate
- Can enroll if College is Engineering and Computer Science
ECE 4983  Electrical Engin Design II  2 Credit Hours
Second Semester ? Electrical Engineering Design This course is conducted as a guided project design course over a two semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized.
Prerequisite(s): ECE 4981
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior
Can enroll if College is Engineering and Computer Science

ECE 4984  Computer Engin Design II  2 Credit Hours
Second Semester Computer Engineering Design This course is conducted as a guided project design course over a two semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized.
Prerequisite(s): ECE 4982
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior
Can enroll if College is Engineering and Computer Science

ECE 4985  Electrical Engineering Design  3 Credit Hours
This course is conducted as a guided project design course over a two-semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and application of demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized. A series of lectures on design issues will be presented in the first semester.
Prerequisite(s): (COMP 270 or COMP 106 or COMP 220 or CPAS with a score of 40) and (ECE 317 or ECE 3171) and ECE 372 and (ECE 414 or ECE 415 or ECE 450 or ECE 460 or ECE 480 or ECE 4951)
Restriction(s):
Can enroll if Class is Senior

ECE 4986  Computer Engineering Design  3 Credit Hours
This course is conducted as a guided project design course over a two-semester period, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation, and application of demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized. A series of lectures on design issues will be presented in the first semester.
Prerequisite(s): (COMP 270 or CPAS with a score of 40 or COMP 106 or COMP 220) and (ECE 317 or ECE 3171) and ECE 372 and ECE 375 and (ECE 471 or ECE 473 or ECE 475) or ECE 478
Restriction(s):
Can enroll if Class is Senior

ECE 4987  Robotics Engineering Design I  2 Credit Hours
This course is conducted as a guided project design course over a two-course sequence, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized. A series of tutorials will be presented to provide student teams with insight into important system level considerations and trade offs.
Prerequisite(s):
Can enroll if Class is Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 4988  Robotics Engineering Design II  2 Credit Hours
Second semester Robotics Engineering Design: This course is conducted as a guided project design course over a two-course sequence, with the class divided into teams, each assigned a specific design project. Periodic progress reports, a final written report, an oral presentation and project demonstration are required. Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized.
Prerequisite(s): ECE 4987
Restriction(s):
Can enroll if Class is Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ECE 499  Internship/Co-op  1 Credit Hour
A four-month professional work experience period of the Engineering Internship Program, integrated and alternated with the classroom terms.
Restriction(s):
Can enroll if Class is Senior

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Engineering Core (ENGR)

ENGR 100  Intro to Eng and Computers  2 Credit Hours
This course gives students a general introduction to the engineering profession and covers some of the elementary skills that students need in order to be successful in their engineering studies. The course covers topics and problems pertaining to mechanical, industrial/manufacturing, and electrical/computer engineering. Aspects of engineering analysis and design are highlighted. Computer skills and communication skills (both oral and written) are emphasized throughout the semester. Two-hour lecture/two-hour laboratory.
Corequisite(s): ENGR 100L
Restriction(s):
Can enroll if College is Engineering and Computer Science
ENGR 126 Engineering Computer Graphics 2 Credit Hours

Corequisite(s): ENGR 126L
Restriction(s):
Cannot enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

ENGR 216 Computer Meth for Engineers 2 Credit Hours
Computer programming in C (or one of its derivatives) and application to basic numerical techniques. Numerical integration, solution of systems of linear equations, root finding, curve fitting, error properties, numerical precision. (F,W,S).
Prerequisite(s): ENGR 100 and ENGR 126* and MATH 216* and (MATH 217* or MATH 227*)
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ENGR 250 Principles of Eng Materials 3 Credit Hours
An introductory course in engineering materials. Particular emphasis is given to the correlation of material properties and internal structures; structure of materials; stress-strain curves; temperature effects; phase diagrams; ferrous and non-ferrous alloys; ceramics; polymers; composites; electrical, magnetic, and optical properties; corrosion and failure. Two-hour lectures and two one-hour recitations.
Prerequisite(s): (CHEM 144 and (CHEM 146* or CHEM 134) and MATH 115* or CHEM 136*)
Corequisite(s): ENGR 250R
Restriction(s):
Cannot enroll if Class is Senior
Can enroll if College is Engineering and Computer Science

ENGR 250R Prin of Eng Materials Rec 0 Credit Hours
Recitation component for ENGR 250. Must be taken concurrently with ENGR 250.
Corequisite(s): ENGR 250

ENGR 290 Study Abroad Technical Subj 1 to 4 Credit Hours
200-level study abroad course in technical subjects.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science

ENGR 300 Creative Problem Solving 1 Credit Hour
Principles of creative thinking, innovation, and group dynamics will be examined. The steps of creative problem solving will be presented and used in a practice problem: 1) problem definition, 2) verbal brainstorming and other idea-generating methods, 3) creative idea evaluation, 4) idea judgment and decision making, and 5) implementation. Finally, the two phases of the Pugh method (creative design evaluation) will be studied in a practical application.

ENGR 322 Speech for Professionals 3 Credit Hours
Professionals must effectively communicate in the technical and business environment of a company organization. The course pays particular attention to verbal communications within and between organizations, focusing on multiple audiences and their varying needs for information. Stressing audience awareness, organization, clarity and efficiency in speaking, it will improve speaking skills necessary for confident verbal presentations such as professional briefings and conferences.

ENGR 350 Nanoscience and Nanotechnology 4 Credit Hours
The terms "nanoscience" and "nanotechnology" have come to mean many different scientific and technical disciplines. The course will introduce students to the fundamentals of nanoscience and nanotechnology. Interesting phenomena about individual nanometer scale objects will be discussed. The difference in properties of objects of nanometer scale, containing hundreds or thousands of atoms and those exhibited by individual atoms or molecules or the properties of materials at the macroscale with which we are most familiar will be covered. The analytical techniques that are used to characterize these objects will be discussed. The manufacturing techniques used to make these objects along with their applications will be covered. Cost benefit analysis of nanotechnology and its future will be discussed. (YR)
Prerequisite(s): PHYS 151 and (CHEM 124 or CHEM 134 or CHEM 144)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters or Engineering and Computer Science

ENGR 360 Des Inovtn: Proc, Meth & Prct 4 Credit Hours
Design Innovation: Process, Method and Practice is a highly interactive project-based introduction to design, structured as a hands-on course. This course brings a holistic vision to design innovation. Students work in teams that follow a process of immersion of user experiences, exploration of ideas and prototyping of potential solutions. To work effectively as a team, collaboration and project management concepts and methods are introduced. The course consists of two instructional elements: regular class lectures and in class hands-on exercises based on case studies. In addition, a semester long team based project allows students to apply classroom learnings to real life design problems. Teams present their design concepts, showcase prototypes in engaging and thoughtful ways. (F, W)
Restriction(s):
Can enroll if Class is Junior or Senior

ENGR 390 Study Abroad Technical Subj 1 to 4 Credit Hours
300-Level study abroad topics in technical subjects.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science
ENGR 399  Prof. Pract. Engrg & Comp Sci  1 Credit Hour
To provide undergraduate engineering and computer science students with an opportunity to develop skills, abilities, and behaviors through both hands-on learning and exposure to the professional work environment. The course provides supervised work experiences relevant to their degree programs with mutually agreed upon engineering work assignments among the student, employer and faculty advisor. (F,W,S)
Prerequisite(s): CIS 275 or (ECE 210 and ECE 273) or (IMSE 255 and IMSE 317) or (ME 230 or ME 260) and (ENGR 126 and ENGR 216 and ENGR 250)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science
ENGR 400  Appl Business Tech for Engr  3 Credit Hours
This course will introduce the students those business skills/tools that will be needed in their jobs soon after graduation and will make them better and well-rounded engineers. They will be able to function better within today's global business environment. The major topics of the course are management finance including cost accounting, organizational behavior, program and project management and business related system thinking. Three hours of lecture per week.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Senior
Can enroll if Level is Professional Development or Undergraduate
ENGR 490  Study Abroad Technical Subj  1 to 4 Credit Hours
400-level study abroad course in technical subjects.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science
ENGR 492  Exper Honors Directed Research  1 Credit Hour
Full Title: Experiential Honors Directed Research. The Experiential Honor Directed Research project involves performing laboratory/experiential research under the supervision of a faculty member. The course involves regular meetings with the supervising faculty member and reading relevant research articles. Engineering student are expected to design and conduct experiments, and to analyze and interpret data. Computing students are expected to analyze a problem, and identify and define the computing requirements appropriate to its solution. A research project report and an oral presentation are expected at the end of the semester. (F,W,S)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science
ENGR 493  Exper Hrs Dir Dsgn  1 Credit Hour
Full Title: Experiential Honors Directed Design The Experiential Honors Directed Design project involves the design, analysis, building and testing of software (a computer-based system, process, component, or program) or hardware (a component, assembly, device or system) to meet desired needs. A design project report and an oral presentation are expected at the end of the semester. (F,W,S)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**English (ENGL)**

ENGL 200  Intro to English Studies  3 Credit Hours
An introduction to English Studies for English concentrators. The course provides students with the interpretive, analytical and basic research skills, the critical vocabulary, the understanding of genre, and the knowledge of major critical approaches necessary for the study of literature. Readings will consist primarily of poetry, fiction, drama, and non-fiction prose written in English by British and American authors, but the course will also include other historical and cultural texts as well as works of criticism. Students will submit at least 20 pages of written work for extensive instructor feedback. (F,W)
Prerequisite(s): COMP 105 or COMP 110 or CPAS with a score of 30
ENGL 223  Intro to Creative Writing  3 Credit Hours
An introduction to the writing of poetry, the short story, and/or the play. Considerable writing, analysis, criticism, and discussion. (F,W).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
ENGL 230  Introduction to Literature  3 Credit Hours
Introduces students to imaginative literature in several genres, including, for example, fiction, poetry, and drama. Stress will be both on appreciation of the aesthetic and cultural value of reading literature and on understanding the process of reading sensitively and intelligently.
ENGL 231  Intro to Literature: Poetry  3 Credit Hours
A disciplined introduction to the reading of poetry, English and American. (F,W).
ENGL 232  Intro to Literature: Fiction  3 Credit Hours
A disciplined introduction to the reading of short stories and novels, English and American. (F,W).
ENGL 233  Intro to Literature: Drama  3 Credit Hours
A disciplined introduction to the reading of plays, English and American. (F,W).
ENGL 235  Engl Lit, Beginnings to 1660  3 Credit Hours
A study of the literature of English from the Anglo-Saxon era to 1660, including Chaucer and Milton, designed to introduce students to important authors, works, and literary movements in their historical contexts. Also designed ot introduce students to the various ways of writing about literature. Although ENGL 235 is continued in ENGL 236, either course may be elected by itself.
ENGL 236  Engl Lit, 1660 to the Present  3 Credit Hours
A study of the literary history of England from the Restoration to the 20th century, designed to introduce students to important authors, works and literary movements in their historical context. Also designed to introduce students to various ways of writing about literature. Although ENGL 236 is a continuation of ENGL 235, either course may be elected by itself.
Prerequisite(s): COMP 105 or CPAS with a score of 30 or COMP 110

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**
ENGL 237  Survey of Amer Literature  3 Credit Hours
A survey of American literature from the Colonial period to the early 20th
century, designed to expose students to major American authors, works,
and literary movements. Topics covered include Puritanism, the literature
of the American Revolution, American Romanticism, Transcendentalism,
the 19th-century poetic tradition, Realism and Naturalism, early 20th-
century poetry and prose, and 20th-century social fiction. Also designed
to introduce students to various ways of writing about literature.
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or
COMP 270 or COMP 280

ENGL 238  Intro to Lit: Arab American  3 Credit Hours
This course in an introduction to Arab American literature, its historical
and cultural contexts and contemporary relevance. Topics will include the
literary and cultural productions of Arab immigrants, their transnational
vision, and explorations of such concepts as home, memory and identity;
the literary, dramatic and poetic responses of Arab American writers to
9/11 and the ongoing war on terror; the role Arab American literature in
offering different versions of Arab and Arab American lives and
experiences from the one circulated in mainstream media, Hollywood
cinema and culture.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 with a score of 40

ENGL 239  Intro to Lit: African American  3 Credit Hours
A study of African-American literature designed to expose students to important
periods, works, and authors within historical context. Topics will include slavery, reconstruction, the Great Migration, the Harlem
Renaissance, and the contemporary renaissance in Black women's
literature. Students will be required to read, critically discuss, analyze, and
write their responses to several literary genres that will be incorporated
(fiction, drama, poetry).

ENGL 248  Introduction to Screen Studies  3 Credit Hours
This course will introduce students to the development of world cinema
by integrating the aesthetics of film with its technology, and its social
economic milieu. It will train the students in analyzing the formalist
qualities of the medium, and in understanding the evolution of its various
genres and styles. (YR)

ENGL 301  Literary Criticism  3 Credit Hours
This course introduces literary criticism and theory from Aristotle to
the present, focusing on the changing concept of literature's nature
and function. Lectures, readings, and discussion cover such critics as
Aristotle, Dryden, Pope, Johnson, Wordsworth, Coleridge, Arnold,
T.E. Hulme, I.A. Richards, T.S. Eliot, and such movements as New
Criticalism, Phenomenology, Reader-Response, Archetypal Criticism,
Structuralist-Semiotic Criticism, Psychological approaches to literature,
New Historicism, Marxism, Feminism, and Deconstruction.
Prerequisite(s): COMP 220 or COMP 270 or COMP 280 (COMP 106 or
ENGL 230 or CPAS with a score of 40) and (ENGL 200 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)

ENGL 304  Studies in Detroit Culture  3 Credit Hours
This course is an attempt to define a modern cultural history of Detroit.
Taught by two faculty members, the emphasis of the course will vary but
the following aspects of the city's cultural history will be covered in some
detail: its literature, arts, music, and architecture; its social conditions and
broader American culture context. (AY)

ENGL 306  Comparat. American Identities  3 Credit Hours
This course will confront and complicate the following key questions:
what does it mean to be an American? What is American culture?
Participants in this course will respond to the questions central to the
American Studies field by reading and discussing historical, sociological,
literary, artistic, material culture, political, economic, and other sources.
Students will use this interdisciplinary study to examine the multiple
identities of Americans - as determined by factors such as gender, race,
class, ethnicity and religion. While emphasizing the diversity of American
culture, participants will consider some core values and ideas uniting
America both in historical and contemporary society. Students will be
invited to seek out and share fresh narratives of the American experience.
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or
COMP 280 or COMP 270
Restriction(s):
Can enroll if Level is Undergraduate

ENGL 310  Narrative Journalism  3 Credit Hours
Students learn to identify, understand and use the techniques of fiction in
the service of nonfiction material. While studying the texts as literature,
students are also encouraged to view them as models for writing.
Assignments include the writing and revising of articles, based on
research and interviews, and written in story form, drawing on literary
techniques. (YR).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a
score of 40 or COMP 280

ENGL 311  British Lit: Beowulf to Milton  3 Credit Hours
A study of British literature from the Anglo-Saxon period to the works
of John Milton, designed to introduce students to important authors,
works, and literary movements in their wider historical and cultural
contexts. (YR)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or
CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)

ENGL 312  British Lit: Milton to 1900  3 Credit Hours
A study of British literature from the works of John Milton to 1900,
designed to introduce students to important authors, works, and literary
movements in their wider historical and cultural contexts. (YR)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or
CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)

ENGL 313  American Lit: Colonial to 1900  3 Credit Hours
A study of American literature from the Colonial period to 1900,
designed to introduce students to important authors, works, and literary
movements in their wider historical and cultural contexts. (YR)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or
CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)

ENGL 314  Brit & Amer Lit: 1900-Present  3 Credit Hours
A study of British and American literature from 1900 to the present,
designed to introduce students to important authors, works, and literary
movements in their wider historical and cultural contexts. (YR)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or
CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)
ENGL 317 Case Studies in Tech Writing 3 Credit Hours
ENGL 317 offers both practical and conceptual studies in technical writing and is open to non-technical as well as technical students. (Engineering students may take ENGL/ COMM 317 for elective credit.) The course offers in-depth treatment of the communication problems and various document designs common to technical writing professionals. Instructional format includes lectures and discussion based on case material derived from actual events, followed up by preparation of written documents. Topics will include document design, language barriers, and the role of technical documents in product liability. (AY).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

ENGL 322 SiD--Writing in Detroit 3 Credit Hours
Full Title: Semester in Detroit: Writing on Detroit--Beyond the Other. This course serves as an elective course for the Semester in Detroit (SiD) program. It is devoted to short fiction in search of a creative rendering of the people in Detroit, a city which offers rich opportunities to explore the theme of the "other". Students will develop short narratives that capture their impressions of the city through its people. Each student will find Detroiters to "study" and creatively report on. Class discussions will help direct students. (S)

ENGL 323 Advanced Creative Writing 2 to 3 Credit Hours
Practice in writing poetry, the short story, the novel, and/or the play. May be repeated to a maximum of six credit hours. (OC).
Prerequisite(s): ENGL 223 or COMP 223

ENGL 327 Advanced Exposition 3 Credit Hours
A study of rhetorical theory and its application to various types of expository essays. Writing assignments will reflect the types of essays studied. May be repeated to a maximum of six credit hours. (YR).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

ENGL 330 Feature Writing 3 Credit Hours
An introduction to the writing of feature stories for magazines and newspapers. Students read and discuss classic examples and study the methods of gathering information, of weaving an article from a variety of story elements, and of preparing a manuscript for publication.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40
Restriction(s):
Can enroll if Level is Undergraduate

ENGL 331 Online Reprtng,Resrch,Writing 3 Credit Hours
Course introduces the technical, social, legal and ethical practice of online research, focusing on research skills required by journalists and other writers. Students use new media technology to generate ideas, to research subjects, and to develop general-audience writing projects in their areas of interest. Course covers the use of Web search engines, directories and databases; finding sources and interviewing people online; evaluating the credibility of online sources and information; using Lexis-Nexis to access archives and public records; and using spreadsheet and database programs.
Prerequisite(s): COMP 106 or COMP 110 or COMP 270 or CPAS with a score of 40

ENGL 341 Religion and Literature 3 Credit Hours
An investigation of the ways in which religious ideas and practices have informed works of literature, and vice versa. Surveying a variety of genres and themes, the course will focus mainly on British and/or American literature and its engagement with Judeo-Christian religion, though some attention may be devoted to other literary and religious traditions (e.g., ancient and medieval texts, European and world literature, Islam and Eastern religions).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 290)

ENGL 342 Myth and Motif 3 Credit Hours
A study of archetypal figures and thematic motifs. Their recurrent appearance in different literary periods and genres and their lineage will be examined in order to increase understanding of the works themselves and of the ages which produced them. A selection will be made from classical myth, Biblical narrative, and historical sources. Thus, the figures may vary from Oedipus and Cain to Faust and Don Juan. Motifs and story patterns may include such devices as the spiritual quest, the journey into Hell, or the patricide prophecy.
Prerequisite(s): ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200

ENGL 343 Adaptations of Literary Texts 3 Credit Hours
This course explores the adaptation of literary texts in a variety of literary genres (poetry, drama, fiction) to other artistic mediums (film, graphic novels/comics, paintings, etc.). Moving beyond limited comparisons of "good" originals and "bad" adaptations, this course focuses on the dialogue among multiple versions of the same story across a range of historical periods, asking how and why adaptations modify their sources in a particular manner. This course addresses the difference between adaptation and appropriation as well as imitation, quotation, allusion, pastiche, and parody.
Prerequisite(s): (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239) and (COMP 106 or COMP 220 or COMP 270 or COMP 280)
Restriction(s):
Cannot enroll if Class is Freshman

ENGL 345 Modern Literature: Drama 3 Credit Hours
A careful reading of selected plays from Ibsen to the contemporary theater, designed to develop appreciative criticism and an understanding of the plays in their relationships to movements in modern drama, theater, background social forces, and trends of thoughts.

ENGL 346 Bible and Western Tradition 3 Credit Hours
A detailed study of major episodes from the Bible, first as a literary work, and second as it is reflected in both poetry and the visual arts during the Renaissance and Baroque periods. Included are selected works by such masters as John Donne, George Herbert, and John Milton in poetry and Michelangelo, Raphael, and Leonardo da Vinci in painting and sculpture. (AY).

ENGL 347 Classicl Lit/Engl Translation 3 Credit Hours
A study of masterworks of ancient Greek and Roman literature with special attention to the development of epic, tragedy, and comedy. Authors studied will include Homer, Virgil, Aeschylus, Sophocles, Euripides, Aristophanes, Terence, and Plautus.
Prerequisite(s): ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate
ENGL 349  The Bible In/As Literature  3 Credit Hours
This course will study selected readings from the Bible, first in regard to their own literary, historical, and cultural contents, and then in regard to their reception, interpretation, and reapplication by later literary tradition. Biblical selections may cover both the Old and New Testaments as well as Apocryphal traditions, while readings from later non-biblical texts will be drawn from various literary periods.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 356  Reading Urban Monstrosity  3 Credit Hours
This course questions the literary techniques and forms that the English writers developed between 1660 and 1900 to characterize and imagine London to be a unified community and to counter the growing perception of London as a "monstrous city." This image of "the English-speaking City" as an uncontrollable monster may be explored in writings by Daniel Defoe, Jane Austen, Elizabeth Gaskell, Robert Louis Stevenson, Charles Dickens, Thomas Hardy, and Joseph Conrad.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 358  Shakespeare on Film  3 Credit Hours
The course examines the adoption of Shakespeare's play-scripts for the screen. It goes beyond a discussion of the relative merits of plays and their respective film adaptations, examining the complex exchanges between the two artistic mediums (e.g. how stage convention such as soliloquies or off-stage action are adapted to the screen; how early silent films were used to market stage productions, etc.). It will approach the issue of adaption by examining the works of key directors, multiple films of a single play, silent films, foreign language adaptions, mass market and art house films, and films which deal with fictive or actual productions of Shakespeare's plays. Special emphasis will be placed on specific stage productions that are later adapted to films. In this course, students will explore a broad range of responses to and interpretations of Shakespeare's works. This class will stress the idea that each staging is an interpretation of the play, its point of view conditioned by the times, the medium, and the director's vision. (OC)

Restriction(s):
Can enroll if Level is Undergraduate

ENGL 361  Am Lit:1630 to Civil War  2 to 3 Credit Hours
A wide-ranging exploration of American literature from its colonial origins through the Civil War. The works of such major authors as Anne Bradstreet, Benjamin Franklin, Frederick Douglass, and Herman Melville will be studied in cultural context.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 and (ENGL 200 or ENGL 230 or COMP 280 or COMP 270) or COMP 220 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 363  Am Lit:Civil War to WW I  3 Credit Hours
A study of the major trends in American prose and poetry, including realism and naturalism, during the late nineteenth and early twentieth centuries, through the work of such authors as Walt Whitman, Mark Twain, and Sara Orne Jewett.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) and (ENGL 200 or ENGL 230 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 364  Writing for Civic Literacy  3 Credit Hours
In Writing for Civic Literacy, students will study how politicians, the media and critical citizens use language to engage with the broader community. Students themselves will learn to use language to become more active, well-informed citizens. They will study rhetorical awareness, audience analysis and persuasive writing techniques and put those lessons to use in community settings. They will perform community service at agencies of their choosing and use those experiences as objects of analysis, researching the social context in which those agencies operate and writing analytically about the agencies. Further, students will synthesize classroom lessons and real-world experience by executing writing tasks for and with the agencies (these tasks might include editorials for the local press, informational webpages and fundraising materials).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40

ENGL 368  20C/21C British/Amer Poetry  3 Credit Hours
A survey of 20th- and 21st-century British and/or American poetry and poets, including such authors as Wallace Stevens, W.H. Auden, T.S. Eliot, Dylan Thomas, Langston Hughes, and Sylvia Plath.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) or COMP 220 or COMP 280 or COMP 220 or ENGL 230 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 370  Narratives of Film and Lit  3 Credit Hours
Explores the narrative conventions of literary and filmic fictions in a cultural, historical, and psychoanalytic context. Goes beyond a discussion of the relative merits of novels and their respective film adaptations and examines the more complex interchanges between the two narrative forms, the ideological function of narrative in contemporary society, and the effect of the medium of a fictional text on the reader/viewer. (AY).
Prerequisite(s): HUM 248 or ENGL 248 or FILM 248 or JASS 248

ENGL 371  Eng Lit from Begin-1500  2 to 3 Credit Hours
A survey of Old and Middle English literature (mostly in translation) designed to acquaint students with the development of themes and techniques of English authors writing before 1500. (OC)
Prerequisite(s): (COMP 106 or CPAS with a score of 40 and (ENGL 200 or COMP 270) or COMP 280 or COMP 220 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 372  Eng Lit: 1500 to 1600  2 to 3 Credit Hours
A survey of English literature from the beginnings of the Renaissance in England through the works of Sidney, Spenser, and Shakespeare (excluding his plays).
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) and (ENGL 230 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 200)

ENGL 373  English Lit 1600-1660  3 Credit Hours
A survey of English literature from Jonson, Bacon, and Donne through the Metaphysicals, the Cavaliers, and Milton's early poems. Representative prose works will also be studied.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 220 and (ENGL 230 or COMP 280 or COMP 270) or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
ENGL 374  Restoration and Early Eighteenth-Century Literature  3 Credit Hours
A survey of English literature of the Restoration and early 18th century, with special emphasis on verse satire (Swift, Montague, and Pope), Restoration drama (Behn, Wycherly, and Congreve), and the origins of the English novel (Defoe, Fielding, and Richardson). (OC)
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) or ENGL 230 and (ENGL 200 or COMP 280 or COMP 220 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250

ENGL 375  The Age of Johnson and Burney  3 Credit Hours
A survey of English Literature of the late 18th century. Readings address the literary gothic, Boswell's journals, the "graveyard school" of poetry, Samuel Johnson's poetry and prose, the 1789 revolutionary fervor, and the novels of Frances Burney and Jane Austen.
Prerequisite(s): CPAS with a score of 40 (COMP 106 and (ENGL 230 or COMP 220 or COMP 270) or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 376  Brit Lit in Romantic Era  2 to 3 Credit Hours
A survey of British literature from 1789 to 1832 with special emphasis on the rise of Romantic poetry.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 377  Victorian Poetry and Prose  2 to 3 Credit Hours
A survey of British poetry and prose during the reign of Queen Victoria 1837 to 1901.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or COMP 220 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 381  Intro to Postcolonial Studies  3 Credit Hours
This course offers a general introduction to Postcolonial Studies - a field of cultural inquiry that questions how personal identity (specifically race, language and ethnicity) shapes, and is shaped by, the politics of colonization and nationalism. Students will clarify the subject of battle between plays and theories of human behavior, psychodrama, and self-insight through performance. Class involves a significant experiential component.
Prerequisite(s): (COMP 106 or COMP 220 or CPAS with a score of 40) or COMP 280 or COMP 270 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 and PSYC 101

ENGL 399  Independent Studies in English  1 to 3 Credit Hours
A study of gender issues in English and American literature. The exact topic will vary from semester to semester, but the course may feature several topics. Course may be repeated for credit when specific topic differs.
Prerequisite(s): (COMP 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 389  The Odyssey of Blk Men in Amer  3 Credit Hours
This course will examine the struggle of African American men for personal, political, and creative expression. This course incorporates several literary genres (narrative, fiction, essay, drama, and poetry) and the literary voices of black men who range from professional writers to politicians, from athletes to actors. Students will be required to critically read, discuss, analyze, and write their own responses to the literature found in the texts.
Prerequisite(s): (COMP 106 or COMP 280 or COMP 220 or CPAS with a score of 40 or COMP 270) or (ENGL 200 or COMP 220 or COMP 280 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 386  Gender Issues in Literature  3 Credit Hours
Examination of problems and issues in selected areas of English. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC)
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 270) or ENGL 230 or COMP 220 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 390  Topics in English  3 Credit Hours
A study of gender issues in English and American literature. The exact topic will vary from semester to semester, but the course may feature specific topics. Course may be repeated for credit when specific topic differs.
Prerequisite(s): (COMP 106 or COMP 280 or COMP 220 or CPAS with a score of 40) or COMP 280 or COMP 270 or (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 394  Psychology and Theater  3 Credit Hours
Examination of problems and issues in selected areas of English. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC)
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 270) or ENGL 230 or COMP 220 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 390  Topics in English  3 Credit Hours
Examination of problems and issues in selected areas of English. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC)
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 270) or ENGL 230 or COMP 220 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 394  Psychology and Theater  3 Credit Hours
Examination of problems and issues in selected areas of English. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC)
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 270) or ENGL 230 or COMP 220 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 399  Independent Studies in English  1 to 3 Credit Hours
A study of gender issues in English and American literature. The exact topic will vary from semester to semester, but the course may feature specific topics. Course may be repeated for credit when specific topic differs.
Prerequisite(s): (COMP 106 or COMP 280 or COMP 220 or CPAS with a score of 40) or COMP 280 or COMP 270 or (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239) and PSYC 101

ENGL 399  Independent Studies in English  1 to 3 Credit Hours
A study of gender issues in English and American literature. The exact topic will vary from semester to semester, but the course may feature specific topics. Course may be repeated for credit when specific topic differs.
Prerequisite(s): (COMP 106 or COMP 280 or COMP 220 or CPAS with a score of 40) or COMP 280 or COMP 270 or (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239) and PSYC 101

ENGL 401  Lit of Anglo-Saxon England  2 to 3 Credit Hours
A literary analysis of Beowulf and other Old English poems. Some attention will be given to the structure and pronunciation of Old English. Students cannot receive credit for both ENGL 401 and ENGL 501.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) or (ENGL 230 or COMP 220 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Cannot enroll if Class is Graduate
ENGL 404 Medieval Mystical Writers 3 Credit Hours
A study of the genre of mystical writing as it was developed and practiced throughout the Middle Ages and in 14th century England particularly. Attention will be given to the historical, religious, and cultural contexts that enabled and were created by mystical texts. In addition, the course will explore how traditional and contemporary trends in the fields of religious and literary studies can be brought to bear on the genre of mystical writing. (OC)
Prerequisite(s): (COMP 106 or COMP 270 or COMP 220 or CPAS with a score of 40) or COMP 280 and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 405 Chaucer 3 Credit Hours
An introduction to the poetry of Chaucer, with primary reference to the Canterbury Tales and some attention to Chaucer’s short poems. Students cannot receive credit for both ENGL 405 and ENGL 505.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) and (ENGL 230 or COMP 220 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 406 Studies in Medieval Lit/Cult 3 Credit Hours
An intensive study of a single author, movement, genre, or theme in the Medieval period. Lectures will explore historical and cultural contexts and the relevance of contemporary methodologies to the study of Medieval texts.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or ENGL 230 and (ENGL 200 or CPAS with a score of 40) or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 408 Shakespeare I: Earlier Works 3 Credit Hours
Intensive study of selected works from the first half of Shakespeare’s career, designed to increase the student’s critical appreciation and understanding. Students cannot receive credit for both ENGL 408 and ENGL 508.
Prerequisite(s): (COMP 106 or COMP 220 or CPAS with a score of 40 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 409 Shakespeare II: Later Works 3 Credit Hours
Intensive study of selected works from the second half of Shakespeare’s career, designed to increase the student’s critical appreciation and understanding. Students cannot receive credit for both ENGL 409 and ENGL 509.
Prerequisite(s): (COMP 106 or COMP 220 or CPAS with a score of 40 or COMP 280 or COMP 270) or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 410 Maj Engl Authors of the Renais 2 to 3 Credit Hours
An investigation of significant themes and attitudes current in the Renaissance, as seen through an intensive examination of the works of two or three major authors, such as More, Spenser, Bacon, and Donne.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 and (ENGL 230 or COMP 270) or COMP 280 or COMP 220 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 412 Milton 3 Credit Hours
An intensive study of Paradise Lost and Paradise Regained, Areopagitica and the shorter poems, including Samson Agonistes and Comus. Consideration is given to historical background and to other writings by Milton insofar as they illuminate his major works. Students cannot receive credit for both ENGL 412 and ENGL 512.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 220 and COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 413 Shakespeare’s Contemporaries 2 to 3 Credit Hours
An examination of the performance and cultural contexts of plays by English Renaissance playwrights (Marlowe, Middleton, Webster, Jonson, etc.), working around the time of Shakespeare. A limited number of Shakespeare’s plays may be included.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 270) or COMP 280 or COMP 220 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 414 Seventeenth-Century Readings 2 to 3 Credit Hours
An intensive study of mid-17th century authors or literary movements, such as Browne, Burton, and the metaphysical poets. Students cannot receive credit for both ENGL 414 and ENGL 514.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 270) and (ENGL 230 or COMP 280 or COMP 220 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 420 Maj Engl 18th-Century Authors 2 to 3 Credit Hours
An intensive study of two or three authors, such as Dryden, Behn, Pope, Swift, Burney, Austen, or Samuel Johnson. Students cannot receive credit for both ENGL 420 and ENGL 520.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 280 or COMP 220 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 421 Swingers, Flirts, & Libertines 3 Credit Hours
An examination of the functions that writers in English have assigned to literary decadence, libertinism, and aestheticism (or, the study of beauty and “art for art’s sake”). We will read writers who identified themselves as libertines as well as writers who represented libertines as we address the Restoration rake (Rochester & Behn), the Regency buck (the Shelleys & DeQuincey), the Victorian dandy (Oscar Wilde, Michael Field, & the Decadents), the modern playboy (Nin, Waugh & Fitzgerald), hippie-swingers (Wolfe & Jagger), and finally, the postmodern player-celebrity (Bret Easton Ellis, Will Self & rock-lyricists).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 280 or COMP 270 or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
ENGL 422  Satire  3 Credit Hours
An exploration of satirical writing and its functions from its English origins in eighteenth-century London (Montagu, Swift, Pope) to its twenty-first-century reincarnations in both America and Britain (Zadie Smith, Burgess, Schulzer, Hughes, Waugh). The course emphasizes the various goals that writers have assigned to satire, especially in terms of race, gender, and nationalism.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40 and ENGL 200 or ENGL 230 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 423  Restoration Drama  3 Credit Hours
A survey of playwriting and theatrical performance in England from Charles II's opening of the theaters in 1660 to the Licensing Act of 1737. Playwrights and movements include historical drama (Dryden, Rowe), tragicomedy (Souterne), urban social satire (Behn, Etherage, Gay, Centlivre, and Congreve), subversive comedy (Behn and Wycherley), sentimental comedy (Steele), and revisions of Shakespeare.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 424  18th-Century English Novel  3 Credit Hours
A study of the rise and development of the English novel during the 18th century. Consideration is given to such novelists as Defoe, Richardson, Fielding, Sterne, Austen, and Smollett. Students cannot receive credit for both ENGL 424 and ENGL 524.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 280 or CPAS with a score of 40 or COMP 220 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 427  Jane Austen  3 Credit Hours
This course reads all six (6) of Jane Austen's major novels to 1) contextualize Austen's continued popularity within current debates about sexuality and marriage; and 2) study how the narrative arc of a female novelist's career responds to--and helps readers process--the revolutionary upheavals between late eighteenth- and early nineteenth-century Britain. Readings include_Northanger Abbey_, Sense & Sensibility_, Pride & Prejudice_, Mansfield Park_, Emma_, and Persuasion_ and may also include Austen's juvenalia, unfinished work, and fiction by her precursors. (OC)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 430  Stud in 19th-Century Brit Lit  3 Credit Hours
Intensive study of a special topic in 19th-century British literature. The course may treat a single author (e.g., Dickens), a movement (e.g., the Pre-Raphaelites), or a theme (e.g., literary responses to the French Revolution, the literature of mental crisis, Victorian social criticism).
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 270) or COMP 220 and (ENGL 230 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)

ENGL 431  British Romantic Writers  3 Credit Hours
An intensive study of selected British Romantic writers, with attention to the historical and literary contexts in which they wrote. Students cannot receive credit for both ENGL 431 and ENGL 531.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 220 or COMP 270) and (ENGL 230 or COMP 280 or COMP 270) or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 432  Victorian Writers  3 Credit Hours
An intensive study of selected Victorian poets and/or nonfiction prose writers, with attention to the literary and historical contexts in which they wrote. Students cannot receive credit for both ENGL 432 and ENGL 532.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 270) and (ENGL 230 or COMP 220 or COMP 270) or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 434  The Victorian Novel  3 Credit Hours
A study of the British novel during the reign of Queen Victoria, 1837 to 1901.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 220 or COMP 270) and (ENGL 230 or COMP 270) or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 436  Memoir and Travel Writing  3 Credit Hours
A course in narrative non-fiction that focuses on memoir and travel writing. Reading involves several books as well as classic essay-length examples. Assignments include both short analytical papers and the writing and revising of three original articles, based on research, interviews, memory, and observation, and drawing on literary techniques. (YR).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 440  Major 20C/21C Eng/Am Aut 3 Credit Hours
An intensive examination of the works of representative English and American authors since 1900. Students cannot receive credit for both ENGL 440 and ENGL 540.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 280 or COMP 220 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 441  Major 20C/21C English Authors  3 Credit Hours
An intensive study of several modern English authors, such as Shaw, Joyce, Forster, Dylan Thomas, D.H. Lawrence, and Woolf. Students cannot receive credit for both ENGL 441 and ENGL 541.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) or COMP 220 or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)
Restriction(s):
Cannot enroll if Class is Graduate
ENGL 442  Studies in 20-21 Century Lit  3 Credit Hours
Intensive study of a special topic in 20th- or 21st-century literature in English. The course may treat a single author (e.g. E.M. Forster), a movement (e.g. Postmodernism), a genre (e.g. modern short story), or a theme (e.g. Literature of World War).
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Level is Undergraduate

ENGL 443  Anglo-Irish Literature  3 Credit Hours
A survey of Irish Literature written in English. Special emphasis will be given to Swift, Lady Gregory, Synge, Yeats, Joyce, and O?Casey, whose works will be examined in the context of Ireland?s unique history and culture.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) and (ENGL 230 or COMP 220 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 444  Sem in 20C/21C Poetry  3 Credit Hours
A seminar focusing on the poems of two or three English and/or American poets of the 20th- or 21st-century. Intensive discussion of individual poems, along with lectures on authors' critical and historical backgrounds.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270) and (ENGL 230 or COMP 220 or COMP 280 or COMP 270) or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

ENGL 445  20C/21C Women Authors  3 Credit Hours
An analysis of selected works by significant and emerging 20th and 21st century women authors writing in English, with special emphasis on issues of gender and social and cultural identity.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or ENGL 230 or COMP 220 or COMP 280 or COMP 270) or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Cannot enroll if Class is Graduate

ENGL 450  Maj Am Auth to the Civ War  3 Credit Hours
An intensive study of two or three authors, such as Charles Brockton Brown, Nathaniel Hawthorne, or Harriet Beecher Stowe, from the earlier periods of American Literature. Students cannot receive credit for both ENGL 450 and ENGL 550.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 and (ENGL 230 and COMP 270) or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Cannot enroll if Class is Graduate

ENGL 451  Maj Am Auth Civ War to WWI  3 Credit Hours
An intensive study of two or three major authors from the period between the Civil War and World War I, such as Emily Dickinson, Charles Chesnutt, or Henry James. Students cannot receive credit for both ENGL 451 and ENGL 551.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 220 and (ENGL 230 or COMP 270) or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Cannot enroll if Class is Graduate
ENGL 464  Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners and related developments in linguistics, philosophy, psychology, communication, and composition and rhetoric. Students may not receive credit for both ENGL 464 and ENGL 564.
Prerequisite(s): CPAS with a score of 40 (COMP 106 and (ENGL 200 or COMP 220 or COMP 270) or ENGL 230 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 465  Discourse Analysis  3 Credit Hours
An examination of the syntactic and semantic devices and structures underlying communication in written texts and oral interaction. Material to be analyzed will vary from term to term (technical reports, scholarly articles, newspaper stories) but examples will be drawn primarily from the written language. Students cannot receive credit for both ENGL 465 and ENGL 565. (OC).
Prerequisite(s): (COMP 106 or CPAS with a score of 40 and (COMM 201 or COMP 220 or COMP 270) or COMP 280 or COMP 220 or COMP 290 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 467  Script-Writing Workshop  3 Credit Hours
This writing intensive course will train students to compose a film script, focusing on the substance, structure, and style of an original screenplay. The course will be conducted as a workshop in which students will first study classic scripts (and films based on these) of the film-school generation of directors, then model scenes and sequences of their own scripts on the principles of the above texts, and finally, write their own respective film stories in accordance with an appropriate narrative structure and design. (YR).
Prerequisite(s): JASS 310 or COMP 310 or ENGL 310 or COMM 310

ENGL 468  Writing Young Adult Fiction  3 Credit Hours
In this course participants will explore the young adult novel from the point-of-view of a reader and a writer. They will read recently published and critically acclaimed popular young adult novels. They will use these texts to explore such issues as gender, race and identity as they relate to young adult lives and their respective cultures generally. They will use these texts as models for the production of their own texts and will consider the constraints and benefits of constructing and writing to a particular audience. They will consider if and why young adult novels are abbreviated or limited in relationship to adult literature. In addition to reading about ten novels, they will complete several creative exercises leading up to a final portfolio. Students will not receive credit for both ENGL 468 ad ENGL 568.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 223 or COMP 223)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 469  Contemporary African Amer Lit  3 Credit Hours
An intensive study of major 20th-century African-American writers. Fiction, poetry, autobiography, and drama will be examined but one genre will be stressed in any given term, e.g., the novel. Lectures will provide historical and biographical context for analysis and discussion of the works. Students cannot receive credit for both ENGL 469 and ENGL 569. (OC).
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 220 or COMP 270) and (ENGL 200 or ENGL 230 or COMP 280 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 4705  Black Women / Lit, Film, Music  3 Credit Hours
This course will examine works produced by Black women authors, activists, filmmakers and musical performers in order to determine the methods they have incorporated in order to challenge and eradicate the prevailing stereotypes about Black women while advancing their own personal and racial agendas. It will also focus on the extent to which race, gender and class have shaped the creative work of Black women. Students will be required to read, discuss, analyze and write their own responses to the works of such firebrands as author Zora Neale Hurston, activist Ida B. Wells, filmmaker Julie Dash, and singer Billie Holliday.
Prerequisite(s): FILM 240 or FILM 248 or FILM 385 or AAAS 239 or AAAS 275 or HUM 303 or HUM 221 or HUM 222 or HUM 232 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 237 or ENGL 239 or ENGL 248 or ENGL 200 or ANTH 303 or PSYC 303 or SOC 303 or WGST 303

ENGL 471  Sexual Subcultures in Lit  3 Credit Hours
This course surveys primarily contemporary literature by writers who identify as gay, lesbian, bi-sexual, transgender, or queer. By studying the self-representation and culturally unique perspective of this emerging canon of writers, students in this course understand the emergence of LGBTQ literary traditions and understand the cultural diversity within these traditions. Students learn to identify the aesthetic qualities (such as camp, performativity, coded subtexts, homoeroticism, and the relationship between creativity and sexuality), and historical, political, and social concerns that characterize LGBTQ literary and cultural production. Topics covered include the struggle for civil rights before and after Stonewall, coming out narratives, the negotiation of homophobic cultures, post-colonial writers, and memoirs of the LGBTQ experience, as well as the historical emergence of sexual categories and the literary critique of heteronormativity. This course counts toward the English discipline diversity requirement. Students cannot receive credit for ENGL 471 and ENGL/WGST 571.
Prerequisite(s): (ENGL 200 or ENGL 231 or ENGL 230 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239) and (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40)
ENGL 472  Reading in Multicult Contexts  3 Credit Hours
An examination of the effect of different cultural backgrounds on
reading and literature. Topics include contrastive rhetoric, folk narrative,
and multicultural juvenile literature. This course does not satisfy
requirements for the English concentration. Not open to English
concentrators. Students cannot receive credit for both ENGL 472 and
ENGL 572. (YR).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280
or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 473  Arab American Women Writers  3 Credit Hours
Examines the literary and cultural contributions of Arab and Arab
American women novelists, poets and artists to the development and
consolidation of the cultures of understanding and coexistence; explores
the tensions between citizenship and belonging, race and the politics
of fears, gender and geographical mobility, and ethnic minorities and
mainstream consciousness; discerns how Arab women writers and
artists retool their various artistic endeavors to channel socio-political
disenchantment, critique and civil disobedience; stresses how literary
and artistic productions of a heterogeneous number of Arab American
women writers and artists can indeed foster alternative visions of socio-
cultural coexistence, dialogue and hospitality via artistic commitments to
technical and stylistic experimentation and renovation. Students cannot
receive credit for both ENGL 473 and ENGL 473. For graduate credit take
ENGL 573.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280
or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 238 or ENGL 239)

ENGL 474  Second Lang Acquisition: Engl  3 Credit Hours
A survey of fundamental concepts and major concerns in the study of
English as a Second Language (ESL). The course examines a variety of
psycholinguistic and sociolinguistic issues related to second language
acquisition (SLA), ranging from theoretical to pedagogical. A primary
focus is on developmental patterns and cognitive processes of SLA and
individual variation in ESL speakers in terms of their social motivations
and learning strategies. Implications for practical concerns such as
the ESL teaching profession, instructional materials and curriculum
development will be addressed where relevant.
Prerequisite(s): LING 280 or LING 281 or LING 480

ENGL 477  African American English  3 Credit Hours
An examination of the structure, history and use of African-American
English. Topics will include the pronunciation, grammar and vocabulary
of African-American English, theories of origin, linguistic repertoire
and code-switching in African-American communities, the Ebonics
controversy, and the role of this variety in education and identity
formation. Students cannot receive credit for both ENGL 477 and
ENGL 577.
Prerequisite(s): LING 280 or LING 281 or LING 480
Restriction(s):
Cannot enroll if Level is Undergraduate

ENGL 478  History of the English Lang  3 Credit Hours
A thorough grounding in the history and structure of the English
language. At issue are the linguistic and ideological origins of the
concept of Standard English, and the strengths and limitations of
different methods of analyzing the history of the language. The course
will emphasize sound change, grammatical change, and their sociological
context. (YR)
Prerequisite(s): LING 280 or LING 480
Restriction(s):
Can enroll if Level is Undergraduate

ENGL 479  World Englishes  3 Credit Hours
A study of the origin and significance of different forms of English
throughout the world. Contact with other languages, pidginization,
creolization, standardization, and the formation of the three circles of
English are examined. (YR)
Prerequisite(s): LING 280 or LING 480
Restriction(s):
Cannot enroll if Class is Graduate

ENGL 485  Theories of Writing  3 Credit Hours
In this course we will investigate why and how people write for particular
audiences and in a variety of contexts. Subjects will include: cognitive
and social theories of writing and the writing process, theories of
persuasion, writing across the curriculum, writing for multiple audiences,
writing in the workplace, writing for self and for publics, and teaching
writing. The course will be useful to students interested in teaching
writing at the K-12 level, those interested in careers in communication
and those who wish to better understand how writing promotes personal
and societal change. (YR)
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a
score of 40 or COMP 280

ENGL 486  Queer Theory & Literature  3 Credit Hours
This course reads theories of sexuality to analyze how writers since
1600 have imagined printed text to reflect and shape desire, particularly
same-sex desire. The course questions how same-sex desire appears
in literature written before the theorization of “the Homosexual” in the
late nineteenth century as well as how writers imagine sexuality before
a hetero/homosexual binary appears. Writers may include contemporary
theorists (Sedgwick, Foucault, Butler) as well as novelists (Gaskell and
Stoker), playwrights (Kushner and Wycherley), and poets.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 280 or CPAS with a
score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or
ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239 or AAAS 239)

ENGL 487  Monsters, Women & the Gothic  3 Credit Hours
This course questions our inheritance of “the gothic” as a district literary
style that continues to discipline readers’ notions of gender and sexual
identity. The course argues that by tracing the gothic’s literary history,
we may simultaneously witness a history of gender formation. Readings
may include English novelists who originated a gothic style in English
(Walpole, Radcliffe, Lewis) as well as English and American poets and
novelists who have debated as well as resisted the effects of the gothic
on readers’ (particularly women’s) psychology (Christina Rossetti, Austen,
King, Stoker).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280
or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231
or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or
ENGL 239)
ENGL 488  Env Lit & Reps of Nature  3 Credit Hours
An interdisciplinary study of the ways in which the relationship between "nature" and humankind has been represented in literature and other forms of cultural expression. Emphasis on American and British texts of the 19th centuries, but assigned materials may include readings from other cultures and historical periods.
Prerequisite(s): CPAS with a score of 40 (COMP 106 or COMP 270) or COMP 220 or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 200 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENGL 490  Advanced Topics in English  3 Credit Hours
Examination of advanced problems and issues in selected areas of English studies. Title as listed in the Schedule of Classes will change according to content. May be repeated for credit when specific topics differ.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

English Composition (COMP)

COMP 095  Engl Second Language I  3 Credit Hours
An alternative to COMP 099. Specifically designed to address the needs of students for whom English is a second language and who are not yet proficient in English. Offers intensive practice in basic English grammar and rhetoric through the writing of short papers and the reading and discussion of appropriate texts. Focuses on the conventions of written English. (OC).

COMP 099  Writing Techniques  3 Credit Hours
Course is designed to help the less-prepared student qualify for COMP 105 by providing a review of basic grammar and syntax and frequent practice in writing short papers to develop habits of unified, coherent, and correct composition. Student writing is complemented by the reading and analysis of short prose pieces selected to help students read for understanding and to learn more about writing through the study of professional authors. Must be taken by students who do not qualify for COMP 105. (F,W).

COMP 105  Writing & Rhetoric I  3 Credit Hours
Comp 105: Focuses on the study and practice of writing and rhetoric, with special emphasis on the writing process. Students write and read critically a range of texts, and consider academic and nonacademic genres and conventions. (F,W).
Prerequisite(s): COMP 099 or CPAS with a score of 20

COMP 106  Writing & Rhetoric II  3 Credit Hours
Focuses on the study of writing and rhetoric through composing a range of researched texts. Students study the rhetorical choices effective for writing in different media, and learn practical strategies for academic inquiry and for giving useful feedback in response to the writing of others. Such strategies include those related to the use of electronic and print resources, peer-review and revision. Credit may only be given toward degree one time for Comp 106, 220 270, or 280, as they are "equivalents".
Prerequisite(s): COMP 105 or CPAS with a score of 30 or COMP 110

COMP 110  Honors Writing & Rhetoric I  3 Credit Hours
Honors Program introductory composition course. Fulfills the Composition I requirement for students in the Honors Program. Course focuses on college-level expository writing techniques through seminar-type analysis of texts read in the Honors Program and through individualized and group writing workshops. Assignments include at least five finished papers incorporating revision. Honors students, like other students in first-semester composition, must pass the standard exit exam for COMP 105 to continue on to COMP 220 (or COMP 106). (F).

COMP 220  Honors Writing & Rhetoric II  3 Credit Hours
Honors Composition fulfills the Composition II requirement for students in the Honors Program. It is designed to develop research, writing, and editing skills and to give the student experience in argumentation and persuasion and in the interpretation of literary texts. Satisfies for honors students the 200-level prerequisite for upper-division English courses, except for English concentrators. Credit may only be given toward degree one time for Comp 106, 220, 270, or 280, as they are "equivalent" courses. (YR)
Prerequisite(s): COMP 110 or CPAS with a score of 30 or COMP 105

COMP 223  Intro to Creative Writing  3 Credit Hours
An introduction to the writing of poetry, the short story, and/or the play. Considerable writing analysis, criticism, and discussion. (F,W).
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280

COMP 227  Intermed Expo and Arg  3 Credit Hours
Further explorations in exposition and argumentation to develop and enhance the student's ability to write essays and/or articles. Review of basics of grammar and style. Intensive practice in writing and careful examinations of appropriate books and shorter prose works. Written assignments of 500 to 2000 words. (F,W).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMP 267  Arab & Arab American Workshop  3 Credit Hours
The Arab and Arab American Writers Workshop is a creative writing workshop focusing on poetry and fiction. Students will explore Arab American literature, writers, and themes. Students are expected to work on their own manuscripts as well as critique outside readings. The workshop will be conducted under the guidance of Arab and Arab American faculty and is open to all students.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
COMP 270  Tech Writing for Engineers  3 Credit Hours
Instruction and practice in designing technical reports. Students study the rhetorical problems facing the professional engineer in industry and learn practical strategies for analyzing and communicating technical information to both technical and non-technical audiences. Topics include audience analysis, technical research methods, report formats (written and oral, formal and informal), argumentation and persuasion, editing. This course fulfills the Composition II requirement for engineering students only. Credit may only be given toward degree one time for Comp 106, 220, 270, or 280, as they are "equivalent" courses. (F,W)
Prerequisite(s): COMP 105 or CPAS with a score of 30 or COMP 110
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science

COMP 280  Business Writing & Rhetoric  3 Credit Hours
COMP 280 focuses on instruction and practice in composing and designing business documents, including abstracts, memos, email, letters, reports, resumes, proposals, and slide presentations. Students study the rhetorical problems facing business professionals and learn practical strategies for analyzing business information and communicating with professional and non-professional audiences. Such strategies include those related to the use of electronic resources, peer-review and revision. This course fulfills the Composition II requirement for pre-business students. Credit may only be given toward degree one time for Comp 106, 220, 270, or 280, as they are "equivalent" courses.
Prerequisite(s): COMP 105 or COMP 110 or CPAS with a score of 30
Restriction(s):
Can enroll if Major is Community Health Education, Public Health, Prebusiness

COMP 300  Writing Studio  1 Credit Hour
Concurrent registration in a first-year writing course or an upper-level writing-intensive course required. Writing Studio is a one-credit-hour workshop that provides small-group, student-centered advice on all phases of the writing process, from composing to revising and editing. Special attention given to rhetorical considerations like adapting to audience expectations and critically considering discipline-specific conventions. Focus on drafts-in-progress students are writing concurrently in their Dearborn Discovery Core classes. (F,W,S,YR)

COMP 310  Narrative Journalism  3 Credit Hours
Students learn to identify, understand and use the techniques of fiction in the service of nonfiction material. While studying the texts as literature, students are also encouraged to view them as models for writing. Assignments include the writing and revising of articles, based on research and interviews, and writing in story form, drawing on literary techniques. (YR)
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMP 327  Advanced Exposition  3 Credit Hours
A study of rhetorical theory and its application to various types of expository essays. Writing assignments will reflect the types of essays studied. May be repeated to a maximum of 6 credit hours.
Prerequisite(s): COMP 106 or COMP 270 or COMP 220 or CPAS with a score of 40 or COMP 280

COMP 331  Online Reporting, Research, Writing  3 Credit Hours
Course introduces the technical, social, legal and ethical practice of online research, focusing specifically on reporting (i.e., research and interview) skills required by journalists and others. Students use new media technology to generate ideas, to research subjects, and to develop general-audience writing projects in their areas of interest. Course covers the use of Web search engines, directories and databases; finding sources and interviewing people online; evaluating the credibility of online sources and information; using Lexis-Nexis to access archives and public records; and using spreadsheet and database programs.
Prerequisite(s): COMP 106 or COMP 110 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if Level is Undergraduate

COMP 341  Writing in the Professions  3 Credit Hours
This course involves students in an examination of rhetoric and argumentation in professional and workplace settings. This course introduces relevant theories of cultural and linguistic analysis, including genre analysis. Comp 341 includes an extended research project focused on writing in professional or workplace settings. (AY)
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280

COMP 364  Writing for Civic Literacy  3 Credit Hours
In Writing for Civic Literacy, students will study how politicians, the media and critical citizens use language to engage with the broader community. Students themselves will learn to use language to become more active, well-informed citizens. They will study rhetorical awareness, audience analysis and persuasive writing techniques and put those lessons to use in community settings. They will perform community service at agencies of their choosing and use those experiences as objects of analysis, researching the social context in which those agencies operate and writing analytically about the agencies. Further, students will synthesize classroom lessons and real-world experience by executing writing tasks for and with the agencies (these tasks might include editorials for the local press, informational webpages and fundraising materials).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMP 390  Topics in Composition  3 Credit Hours
Examination of problems and issues in selected areas of rhetoric and composition. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs. (OC)
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMP 399  Independent Study  1 to 3 Credit Hours
A significant writing project in non-fiction or fiction prose developed in accordance with the needs and interest of those enrolled and agreed upon by the instructor. Participants may also study texts of published authors. May be repeated for a maximum of 6 credit hours.
Restriction(s):
Can enroll if Level is Undergraduate
COMP 436  Memoir and Travel Writing  3 Credit Hours
A course in narrative non-fiction that focuses on memoir and travel writing. Reading involves several books as well as classic essay-length examples. Assignments include both short analytical papers and the writing and revising of three original articles, based on research, interviews, memory, and observation, and drawing on literary techniques. (YR).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Level is Undergraduate

COMP 464  Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners and related developments in linguistics, philosophy, psychology, communication, and composition and rhetoric. Students may not receive credit for both COMP 464 and COMP 564.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

COMP 466  Arguing Feminism: Rhetoric  3 Credit Hours
An introduction to the work of major twentieth century feminists working in rhetoric and related fields. Students examine recurring themes of language, meaning, ethics and ideology, and practice writing strategies which address rhetorical and ethical concerns central to feminist/academic writing.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

COMP 468  Read/Writ Young Adult Fiction  3 Credit Hours
In this course participants will explore the young adult novel from the point-of-view of a reader and a writer. They will read recently published and critically acclaimed popular young adult novels. They will use these texts to explore such issues as gender, race and identity as they relate to young adult lives and their respective cultures generally. They will use these texts as models for the production of their own texts and will consider if and why young adult novels are abbreviated or limited in relationship to adult literature. In addition to reading about ten novels, they will complete several creative exercises leading up to a final portfolio.
Prerequisite(s): COMP 106 and (ENGL 223 or COMP 223)
Restriction(s):
Cannot enroll if Class is Graduate

COMP 475  Supporting Literacies  3 Credit Hours
COMP 475 will help prepare advanced undergraduate students to be successful as writing tutors and/or as supporters of literacy development in diverse higher education and community contexts (work in university writing centers, community literacy organizations, service learning courses, etc.) through sustained focus on the theoretical and practical issues involved in the teaching and tutoring of writing. The course also will help students make explicit connections between the teaching and learning of writing in various college classroom contexts (i.e., writing-across-the-curriculum) and other sites of literacy work. A range of writing projects will provide students with opportunities also to hone their own abilities as reflective and critical writers. (AY)
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280

COMP 485  Theories of Writing  3 Credit Hours
In this course we will investigate why and how people write for particular audiences and in a variety of contexts. Subjects will include: cognitive and social theories of writing and the writing process, theories of persuasion, writing across the curriculum, writing for multiple audiences, writing in the workplace, writing for self and for public, and teaching writing. The course will be useful to students interested in teaching writing at the K-12 level, those interested in careers in communication and those who wish to better understand how writing promotes personal and societal change. (YR)
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Entrepreneurship (ENT)

ENT 400  Entrepreneurial Thinking&Behav  3 Credit Hours
This course introduces entrepreneurship as an approach to one's life and career advancement. It explores how entrepreneurial thought can create change and opportunities in many organizations, including large corporations, small business, and communities. The course will focus on how the entrepreneurial mindset is a toolkit that can be taught and how entrepreneurial skills empower individuals to bring about change. Students will be challenged to push the boundaries to identify unmet customer needs that are demanded by various demographics. Important aspects of the course include a careful analysis of the following: opportunity recognition, design thinking, market assessment, effective communication, operational partners, strategic management, and financial planning. Students will be exposed to resources from urban areas including speakers with experience and expertise in the entrepreneurial community.
Restriction(s):
Can enroll if Class is Junior or Senior

ENT 401  New Venture Planning  3 Credit Hours
Full Title: New Venture Planning and Entrepreneurial Processes. This course focuses on the research, planning, and strategies that are critical in the process of pursuing a new venture. Particular focus will be given to the business model and key resources to support the early stages of both large and small ventures. The business model canvas will be used to understand how a venture creates, delivers, and captures value. Students will critically analyze businesses, products, and services and, in a team, they will create their own plan to implement a venture. (YR)
Prerequisite(s): ENT 400
ENT 402  Entrep, Corp Entrep & Society  3 Credit Hours
Full Title: Entrepreneurship, Corporate Entrepreneurship, and Society. Students in this course examine entrepreneurship from historical, philosophical, economic, and sociological lenses. The course helps students understand the origins of the field and the role of entrepreneurship in the allocation and distribution of scarce resources for wealth and prosperity in society. From this foundation, students examine entrepreneurship’s influence on contemporary world issues. The course finishes by examining how different types of entrepreneurship opportunities (i.e., types of business being pursued) result in fundamentally different organizational structures, each with unique requirements for entrepreneurial success. (YR)
Prerequisite(s): ENT 400
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Environmental Science (ESCI)

ESCI 275  Intro to Environmental Science  3 Credit Hours
A distribution course which surveys major environmental problems. Concepts discussed are ecology, environmental chemistry, methods of investigating the environment, and possible solutions to environmental problems. Three hours lecture. (YR).

ESCI 301  Environmental Science  4 Credit Hours
A survey of historical and current environmental problems, with emphasis on understanding causes, consequences, and control. Topics include human population growth, air pollution, water pollution, and waste disposal. Laboratory emphasizes an experimental approach to environmental problems, including data collection, analysis, and interpretation. Lecture and laboratory/recitation.
Prerequisite(s): (CHEM 124 and GEOL 118 or CHEM 144) or CHEM 134 and BIOL 130
Corequisite(s):

ESCI 304  Ecology  4 Credit Hours
Relationships between organisms and their environments. Patterns in the physical environment, physiological and behavioral adaptations, population dynamics, energy flow, nutrient cycling; succession. Three hours lecture, four hours laboratory (with field trips). (F).
Prerequisite(s): BIOL 130 and (MATH 104 or MATH 105 or MATH 113 or MATH 115 or MPLS with a score of 116)
Corequisite(s): ESCI 304L

ESCI 305  Intro to GIS  4 Credit Hours
An introductory course that examines the digital representation, manipulation, and analysis of geographic data, with emphasis on the analytical capabilities that GIS brings solutions to geographic problems. Students will explore and learn GIS principles using ESRI’s mapping software, as well as complete a major GIS project.
Corequisite(s): ESCI 305L

ESCI 305D  Intro to GIS & Cartography Dis  0 Credit Hours
Required discussion session for ESCI 305.
Corequisite(s): ESCI 305

ESCI 306  Aquatic Ecosystems  4 Credit Hours
An introduction to the physical, chemical, and biological characteristics of lakes, rivers, and wetlands emphasizing a comparison of ecosystem structure and function. Laboratory emphasizes data collection and analysis to characterize a representative lake, river, and wetland. Lecture and laboratory. (AY,F).
Prerequisite(s): BIOL 130 and (CHEM 124 or GEOL 118)
ESCI 320  Field Biology  4 Credit Hours
Adaptations, taxonomy, systematics, ecology, and behavior of southeastern Michigan flora and fauna. Techniques of field observation and recording are emphasized. Skills in the use of identification keys and guides are developed. The campus Environmental Study Area is used intensively. Three hours lecture, four hours laboratory (with field trips). (S).
Prerequisite(s): NSCI 120 or NSCI 233

ESCI 330  Land Use Planning and Mgmt  4 Credit Hours
Environmental aspects of land use planning, park planning, and site planning. Consideration of soils, groundwater, topography, and sensitive natural features and their role in determining land-use suitability. Examination of the mechanics and effectiveness of the planning process. Lecture and recitation. (AY,W).
Prerequisite(s): (BIOL 130 and GEOL 118) or ESCI 275

ESCI 332  Hazardous Waste Management  3 Credit Hours
Environmental problems associated with solid and hazardous waste. Regulations governing the generation, transport, and disposal of hazardous waste. Waste management techniques, including reduction, reuse, recycling, treatment, incineration, and land disposal. Three hours lecture. (AY,W).
Prerequisite(s): GEOL 118 or ESCI 275

ESCI 333  Plant Ecology  3 Credit Hours
This course focuses on different aspects of the relationship between plants and their environment. Topics include: a) interactions of plants with the physical environment; b) ways in which the environment acts to shape plant populations through evolution; c) intra- and interspecific interactions among individuals; and d) large-scale patterns and processes at the landscape-level. Three hours lecture.
Prerequisite(s): BIOL 130

ESCI 334  Environmental Chemistry  3 Credit Hours
Description of the concepts, principles, practices, and current problems in the chemistry of natural waters, the soil, and the atmosphere. Three hours lecture. (AY,W).
Prerequisite(s): CHEM 344 and (CHEM 225 or CHEM 325)

ESCI 349  Environmental Chemistry Lab  1 Credit Hour
Collection and analysis of air, water, soil, and organisms for pollutants such as noxious gases, heavy metals, and trace organics. EPA-approved methods are emphasized. Four hours laboratory. (AY,W).
Prerequisite(s): ESCI 348* or CHEM 348*

ESCI 352  Introduction to Toxicology  3 Credit Hours
An introduction to the principles of toxicology with an emphasis on environmental toxicology. Major topics include toxic agents, toxicological mechanisms, and use of toxicological reference literature. Discussion of chemical carcinogenesis, genetic toxicology, immunotoxicology, teratology, and toxic responses of the skin, eyes and nervous system. Three hours lecture. (AY,W).
Prerequisite(s): CHEM 225
ESCI 370  Environmental Geology  3 Credit Hours
Interactions between people and the physical environment. Geological hazards and natural processes, such as earthquakes, volcanism, floods, landslides, and coastal processes. Relationships between geology and environmental health, including chronic disease, water use and pollution, waste disposal, mineral resources, and energy use. Three hours lecture. (AY).
Prerequisite(s): GEOL 118

ESCI 372  Energy Resources  3 Credit Hours
Origin and development of fossil fuels (petroleum, coal, natural gas) and of radioactive ores used in nuclear power. Renewable and alternative energy sources, including hydro, solar, wind, biomass, and geothermal power. Environmental impacts of energy use. Three hours lecture. (OC).
Prerequisite(s): GEOL 118 or ESCI 275 or ESCI 301

ESCI 375  Groundwater Hydrology  4 Credit Hours
Prerequisite(s): GEOL 118
Corequisite(s):

ESCI 390  Topics in Environmental Sci  1 to 3 Credit Hours
A course in special topics current to environmental science. Topics and format may vary. See current Schedule of Classes.

ESCI 395  Sem on Environmental Issues  1 Credit Hour
Readings, discussions, and presentations which examine current environmental issues. One hour seminar. Permission of instructor. (F,W).

ESCI 414  Limnology  4 Credit Hours
The study of the structural and functional relationships and productivity of organisms in lakes and streams as they are regulated by their physical, chemical and biotic environments. Laboratories will emphasize field study of area lakes and streams. Three hours lecture, four hours laboratory. BIOL/ESCI 304 or ESCI 275 recommended.
Prerequisite(s): BIOL 130 and (CHEM 136 or CHEM 146)
Corequisite(s): ESCI 414L

ESCI 416  Stream Ecology  4 Credit Hours
A study of the physical, chemical and biological characteristics of streams and rivers. Three hours lecture, four hours laboratory. (OC).
Prerequisite(s): BIOL 304

ESCI 420  Advanced Field Ecology  4 Credit Hours
An intense study of behavioral ecology and field-oriented research at an advanced level, utilizing ecological habitats on campus and in surrounding urban areas. Focus will be on plant/animal interactions and will include pollination ecology, reproduction and distribution ecology, optimal foraging theory, as well as hypothesis testing of animal migration and distribution of species in extreme urban environments. Three hours lecture, four hours laboratory. (OC).
Prerequisite(s): BIOL 304 or BIOL 320 or ESCI 320

ESCI 422  Conservation Biology  3 Credit Hours
This course is a study of the historical and current preservation of global biodiversity. The value of biodiversity, extinction, threats to biodiversity, and both ex situ and in situ conservation strategies are considered. (F,AY)
Prerequisite(s): BIOL 304 or ESCI 304
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

ESCI 485  Spatial Analysis  3 Credit Hours
Full Title: Spatial Analysis and the Environment The statistical methods behind analyzing spatial datasets is covered in detail, with a strong emphasis on environmental sciences and human populations. This course complements courses in remote sensing, geographic information systems, and geographic principles and is designed to quantitatively evaluate the relationships between objects and their surroundings. (S)
Prerequisite(s): GEOL 305 or ESCI 305 or GEOL 340 or ENST 340 or GEOG 302 or GEOG 202 or GEOG 305
Restriction(s):
Can enroll if College is Business or Arts, Sciences, and Letters or Engineering and Computer Science or Education, Health, and Human Services

ESCI 490  Topics in Environmental Sci  1 to 3 Credit Hours
A course in special topics of current interest in environmental science. Topics and course format may vary; see current Schedule of Classes for availability. (OC)

ESCI 490A  Topics in Environmental Sci  3 Credit Hours
Topic: Conservation Biology. A scientific study of the concept of conservation biology, including its ecological, economic, ethical, and cultural components. Lectures, assigned readings, and class discussions will explore the major threats to biodiversity, the complexities of conservation issues, and the tools, strategies, and techniques conservation biologists use to implement policies for the protection and preservation of ecosystems from local to global and short-to long-term scales.
Prerequisite(s): BIOL 130
Restriction(s):
Can enroll if Class is Junior or Senior

ESCI 492  Capstone Research Experience  3 Credit Hours
An approved research experience with a full-time Environmental Science faculty member. Research results are reported in a seminar presentation and in a poster, thesis, or a manuscript submitted for publication. (F, W, S)
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior

ESCI 497  Seminar in Environmental Sci.  1 Credit Hour
Readings, discussion, and presentation of research in selected areas of study. One hour seminar. Permission of instructor. (OC).

ESCI 498  Indep Study in Environ Sci  1 to 3 Credit Hours
Library research and independent study performed under the guidance of a faculty member. Four to twelve hours readings. Permission of instructor. (F,W,S).

ESCI 499  Lab Research in Environ Sci  1 to 3 Credit Hours
Directed laboratory or field research performed under the guidance of a faculty member. Four to twelve hours laboratory. Permission of instructor. (F,W,S).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally.
Environmental Studies (ENST)

ENST 201 Cultural Geography 3 Credit Hours
Overview of the major components of culture such as language, religion, agriculture, settlement patterns, and related landscape features in a spatial context. Emphasis on how various cultures perceive and interact with the environment. (F).

ENST 203 Weather and Climate 3 Credit Hours
The controls and conditions of Earth’s weather and climate including atmospheric circulation, precipitation processes, severe weather, climatic regions, and climatic change. (F).

ENST 204 Landforms 3 Credit Hours
Processes and agents that shape the landscapes and landforms of the Earth’s surface. The discussion of landforms is divided into two parts: (1) constructive processes and their spatial distribution and (2) gradational processes and their spatial distribution. (W).

ENST 300 Urban Geography 3 Credit Hours
The geography of human settlement and urbanization. Particular emphasis is placed on human transformation of the physical environment, and resource use throughout history from ancient civilizations to modern megalopolises. Universal urban challenges such as sprawl, pollution, congestion, crime, poverty, etc., are addressed. (W).

ENST 301 Concepts of Environmentalism 3 Credit Hours
Designed to identify the underlying concepts of any environmental issue. The course will demonstrate the interdisciplinary nature of environmental problems solving through current readings, classical monographs and films. Students will conduct a system analysis of a household and a local community. This course will not be open to students who take ENST 105. (W).

ENST 305 Env Instrumentation and Analys 3 Credit Hours
This course will survey the parameters which must be measured in order to properly assess the environment. Methods for the analysis of the physical as well as the social, psychological, and political environment will be studied. (W).
Prerequisite(s): ENST 301

ENST 310 Economic Geography 3 Credit Hours
Spatial aspects of the ways people make their living. Discussion of the spatial distribution of resources and wealth at various scales. Introduction of site selection and location analysis. (W).

ENST 312 Environmental Ethics 3 Credit Hours
The relationship of human beings to the non-human environment raises pressing moral and political issues. This course will use the theories and concepts of philosophical ethics to explore such questions as human obligations to non-human animals; the preservation of wilderness; balancing economic, aesthetic, and spiritual values; and the problems of pollution, urban sprawl, and ecological justice. (F, YR).
Prerequisite(s): PHIL 100 or PHIL 233 or PHIL 240* or CRJ 240 or ENST 105 or ENST 301

ENST 320 Global Climate Change 3 Credit Hours
This course explores concepts and current thinking on global climate change and environmental impacts. It covers the history of Earth’s climate, causes of climate change and current research attempting to forecast change. The biotic, economic, and social implications of climate change are discussed. (AY)

ENST 325 Environmental Politics 3 Credit Hours
This course will examine the process of policy making on environmental and energy problems at the global level, at the national level, and at the local level. (AY).

ENST 326 Anth of Health and Environment 3 Credit Hours
Cultural conflicts over pollution, disease etiology, development and natural resources often originate and are played out in local ecosystems. Anthropologists are increasingly becoming involved as researchers, developers, and activists in these cultural strifes. This course reviews the work of environmental and medical anthropologists as well as other critical scholars who unravel the values, meanings and ideologies associated with ecological issues in given localities. Drawing on theoretical advances in critical medical anthropology, environmental anthropology and applied anthropology, the course seeks to improve the knowledge and abilities of student anthropologists in their environmental health work.

ENST 327 Michigan Geography 3 Credit Hours
A geographic study of the landforms, waterways, natural resources, landmarks and economic activities that contribute to the physical and cultural landscapes of Michigan. Population, industry, agriculture, recreation and tourism will all be considered. (W,S,YR)

ENST 330 Land Use Planning and Mgmt 4 Credit Hours
Environmental aspects of land use planning, park planning, and site planning. Consideration of soils, groundwater, topography, and sensitive natural features and their role in determining land-use suitability. Examination of the mechanics and effectiveness of the planning process. Lecture and recitation. (AY).
Prerequisite(s): ESCI 275 or (BIOL 130 and GEOL 118)

ENST 340 Remote Sensing 3 Credit Hours
This course explores the acquisition, processing, and visualization of remotely derived data, with a particular emphasis on local and environmental applications. ENST 340 covers concepts and foundations of digital image processing software and techniques.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

ENST 351 Environmental Economics 3 Credit Hours
This course examines the economic aspects of pollution problems. Topics covered include the economic theory of externalities, the theory of the commons, the theory of public goods, and the optimum use of depletable natural resources. The role of cost-benefit analysis as an intricate part of the decision-making process will also be thoroughly examined. (AY).
Prerequisite(s): ECON 202

ENST 365 Environmental Psychology 3 Credit Hours
A survey of the contributions of the behavioral sciences to the understanding and solution of environmental problems that threaten our survival. Insights derived from psychology, anthropology, and computer sciences are discussed. Major topics include overpopulation, overconsumption, "future shock," cognitive limitations in our understanding of ecological-political systems, and the use of Skinnerian behavior control. (AY).
Prerequisite(s): PSYC 170 or PSYC 171

ENST 385 Environmental Internship 1 to 9 Credit Hours
A field assignment relating to the student's environmental interests. The student will work in an off-campus government or private business for a prescribed number of hours each week to be arranged by the advisor and employer. May be repeated up to three times. Written permission of instructor.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate
ENST 390  Topics in Environmental Stds  1 to 9 Credit Hours
Examination of problems and issues in selected areas of environmental studies. Title listed in the Schedule of Classes will change according to the content. Course may be repeated for credit when specific topics differ.

ENST 395  Sem on Environmental Issues  1 Credit Hour
Readings, discussions, and presentations which examine current environmental issues. One hour seminar. Written permission of instructor. (YR).

ENST 436  Human Ecology  3 Credit Hours
Deals with the forms and modes of change of social structure and culture, as affected by interactions with environment, population, and technology. Emphasis is given to territorially based social structures.

ENST 445  Environmental Law  3 Credit Hours
A survey of common law theories and analysis of environmental statutes from a functional perspective. The course also includes environmental law aspects of constitutional law, administrative law and criminal law, as well as the public trust doctrine and public lands. Student cannot receive credit for both ENST 350 and ENST/POL 445.
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

ENST 456  Ecological Economics  3 Credit Hours
A review of major theories and issues concerning the relationship between ecological and economic systems. Topics include these questions: What is the purpose of economics activity? How important is the preservation of the natural world compared to the production of economic goods? How do principles of social and intergenerational equity affect the use of resources and choice of goods to be produced? The course utilizes a transdisciplinary approach in the development of new models where conventional economics and ecology alone have been ineffective in addressing questions of sustainability and equity. (AY).
Prerequisite(s): (ECON 201* or ECON 202*) and ENST 301*
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

ENST 467  Food Politics and Policy  3 Credit Hours
How do politics affect our food at the global, national, and urban/local scale? This course examines close historical relationships between politics and food; the politics of conventional agriculture and food policy; and alternative agricultural movements and food systems, with a particular emphasis on urban food policy and urban food systems. (AY)

ENST 474  Environmental Education  2 to 3 Credit Hours
An analysis of environmental education at elementary and secondary levels, particularly stressing the environment as a teaching resource. Community resources as they relate to environmental education are also investigated. (AY).

ENST 483  Justice, Crime and Environment  3 Credit Hours
This service-learning course focuses on environmental justice and law. Environmental Justice is defined as the fair treatment of all people with respect to the development, implementation, and enforcement of environmental laws. In the classroom, students learn the theory, history, and enforcement of environmental laws and regulations in Detroit, Michigan, and nationwide. In a required civic engagement project, students apply their substantive knowledge to solve local environmental problems. Through classroom learning and projects with community organizations, students connect law and justice concerns to Detroit’s environmental problems.
Restriction(s):
Can enroll if Class is Junior or Senior

ENST 485  Seminar in Environ Topics  2 Credit Hours
A seminar course taken during the student's senior year to provide an opportunity for students with diverse environmental interests to interact and synthesize the information and skills acquired during their previous studies. (W).

ENST 486  Environmental Interpretation  2 to 3 Credit Hours
Course deals with the interpretation of the environment, its characteristics, and its presentation to school groups as well as to the general public. Intended to acquaint students with a variety of skills and techniques necessary for interpreting the environment to others. Extensive use is made of the UM-Dearborn Environmental Study Area. (AY).

ENST 487  Comparative Enviro Policy  3 Credit Hours
This course explores environmental policy as a result of political processes involving diverse participants and entailing movement through several stages? from defining an issue as an environmental problem to placing it on political agenda and then receiving a response at domestic governmental or international levels. This course analyzes environmental issues from a cross-cultural and comparative perspective, with a particular attention given to political institutions, political change, levels of development, political culture, public participation, and international commitments that shape the nature and dynamics of environmental politics and policy in different countries.
Restriction(s):
Can enroll if Class is Junior or Senior

ENST 488  Env Lit & Reps of Nature  3 Credit Hours
An interdisciplinary study of the ways in which the relationship between "nature" and humankind has been represented in literature and other forms of cultural expression. Emphasis on American and British texts of the 19th centuries, but assigned materials may include readings from other cultures and historical periods.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) and (ENGL 230 or ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

ENST 490  Dir Research in Envir Studies  1 to 6 Credit Hours
This course will provide students with an opportunity to conduct an independent research investigation on topics in environmental studies under the direction of various faculty members. The results will be presented in a paper and public seminar. May be repeated.

ENST 491  Topics in Environmental St  3 Credit Hours
The examination of problems and issues in selected areas of environmental studies. The title listed in the Schedule of Classes will change according to the content. The course may be repeated for credit when the specific topic differs. Also offered for graduate credit. (OC).
ENST 491B  Topics in Environmentl Studies  3 Credit Hours
TOPIC: Comparative Environmental Policy. This course explores environmental policy as a result of political processes involving diverse participants and entailing movement through several stages—from defining an issue as an environmental problem to placing it on political agendas and then receiving a response at domestic governmental or international levels. This course will analyze various levels at which environmental issues occur and are being addressed politically.

ENST 497  Seminar in Environmental Sci  1 Credit Hour
Readings, discussions and presentation of research in selected areas of study. One hour seminar.

ENST 498  Independent Study  1 to 3 Credit Hours
Readings or analytical assignments in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor, which shall not duplicate a formal course offering. Permission of instructor.

ENST 499  Independent Study  1 to 3 Credit Hours
Readings or analytical assignments in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor, which shall not duplicate a formal course offering. Permission of instructor.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Exploratory Studies (EXPS)

EXPS 102  Career Planning  1 Credit Hour
A ten-week seminar exploring strengths, values and motivations in the context of developing career planning and decision-making skills. Career interest assessment and individualized assistance is incorporated in the course. This is especially helpful to students who are deciding on their major.

EXPS 218  Topics in Exploratory Studies  1 to 3 Credit Hours
An examination, at the freshman and sophomore level, in the selected areas of general study. The title as listed in the Schedule of Classes may change according to content. Course may be repeated for credit when specific topics differ.

EXPS 220  Science in the Elem School  2 to 3 Credit Hours
This course is designed for people intending to become elementary school teachers and who have had little or no previous experience in science. The course utilizes a laboratory approach to the study of the concepts, processes, and value of elementary and middle school science.

EXPS 250  Elem Ed Vis & Perf Arts  3 Credit Hours
This course will teach the elementary education student how to incorporate the various visual and performing arts into everyday elementary education curricula. The course will cover the fundamental and formal elements, the major periods, styles and philosophies, as well as the functions and processes of the visual and performing arts, and how to effectively employ those creative processes through collaboration, communication, cooperation and interaction in the elementary classroom.

Restriction(s): Can enroll if Level is Undergraduate

EXPS 270  Inclusion & Cultural Immersion  1 Credit Hour
The seminar is modeled after New Detroit?&apos;s Multicultural Leadership Series. The format offers a highly innovative approach to building competences to address (ethnic, racial, gender, and sexual orientation) topics relevant to the metropolitan Detroit region. Students attend off-campus sessions where they spend the day immersed in that culture. Each session offers an in-depth look at (but not limited to) the history, culture, and socioeconomic issues that are germane but also transcend regional barriers. Goals of the course: 1) Bridge communication gaps; promote better understanding and appreciation among all people. 2) Develop a greater understanding of the distinctive and subtle differences within our community. 3) Explore various tools to enhance communication and collaborations geared towards closing our regional divide.

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

EXPS 282  History & Civics Elem Schools  3 Credit Hours
A survey of Michigan and United States history and government through Reconstruction. U.S. historical and political topics taught in grades K-8 are explored. Students also examine families, schools, and local communities.

Restriction(s):
Can enroll if Level is Undergraduate

EXPS 283  Geography & Econ Elem Schools  3 Credit Hours
A survey of the geography and economics taught in grades K-6. Particular attention will be paid to the geography of Michigan and the Great Lakes region. Market and other types of economics will be examined in the light of core economic principles. (F,W,S)

Restriction(s):
Can enroll if Level is Undergraduate

EXPS 298  Exp Writing-Comm Learn&Tch  3 Credit Hours
This course provides a theoretical foundation for using writing to communicate and learn for personal and professional purposes. Emphasis will be placed on learning effective instructional strategies including modeling, using mentor text (high-quality writing examples to emulate), conferencing with others about one's writing, and peer-and self-assessing writing to support all writers' development. For the first half of the course, students will focus on developing their own writing skills using the writing process with three genres (narrative, informational/explanatory, and argumentative). Additional application of course knowledge will be demonstrated during the second half of the semester through an academic service learning project designed to tutor elementary writers. (F)

EXPS 360  Effective Comm with Eng Lng Lrn  1 Credit Hour
This course provides students with a structured experience with an international student in the University of Michigan-Dearborn?&apos;s English Language Proficiency (ELP) Program. Students are paired with an ELP student to meet on a weekly basis to provide opportunities to engage in conversation appropriate for academic settings. In this course students will have the opportunity to develop their understandings of the complexity of aural/oral language communication for English language learners.

Restriction(s):
Can enroll if Level is Undergraduate
EXPS 400  STEM2 Teaching and Learning  3 Credit Hours
The content of this course and the pedagogy employed will provide students with experiences in topics related to the integration of science, technology, engineering, health and mathematics (STEM2). Students will experience examples of STEM2 activities and will explore how STEM2 disciplines impact society. (YR)
Prerequisite(s): EXPS 220 and MATH 385
Corequisite(s): EXPS 401
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Post-baccalaureate NCFD or Junior or Senior

EXPS 401  STEM2 Teach/Learn Internship  1 Credit Hour
This internship will provide students an opportunity to gain experience with K-8 students in an educational setting such as a K-8 classroom, an afterschool program, museums, etc. Students will participate in 45 clock hours over the semester at the placement site working with the students and the assigned instructor/supervisor on STEM2 activities. (YR)
Prerequisite(s): EXPS 220 and MATH 385
Corequisite(s): EXPS 400
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

EXPS 407  Inquiry-based Math and Science  3 Credit Hours
This inquiry-based laboratory course intends to support the learning of early childhood educators (birth to grade 2) in foundations of science and mathematics. The course integrates concepts and processes that arise in both disciplines, such as classification; units and measurements; shapes and structures and their properties; patterns; problem solving; representation; cause and effect; use of evidence (three credits).
Required for Early Childhood Comprehensive Major. Elective for Elementary Education Certification Students. Elective for Children and Families Students. Students cannot receive credit for both EXPS 407 and 507. The required lab fee is to cover course materials.
Prerequisite(s): EXPS 220 and MATH 385
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Sophomore or Junior or Senior
Can enroll if College is Education, Health, and Human Services
Can enroll if Major is General Studies, Early Childhood

EXPS 410  Multicult in School and Soc  3 Credit Hours
Examines ways to address the needs of diverse student populations. Issues of race, ethnicity, class, gender, and language are explored.
Historic and ongoing issues of equity, particularly in school settings, are considered. The focus is on providing an education of high quality to all students.

EXPS 415  Evolution for Teachers  1 to 3 Credit Hours
Course is designed to meet the needs of grade K-12 teachers teaching about evolution. The Michigan Department of Education requires students to be able explain how scientists construct and scientifically test theories concerning the origin of life and evolution of species.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EXPS 420  Science Capstone  3 Credit Hours
A capstone course for pre-service elementary teachers with a laboratory component designed to assist students in achieving deep understanding of a broad scientific concept and a discussion component designed to introduce and provide practice in classroom research. Students will use the classroom research to prove misconceptions about the scientific concept explored in the laboratory.
Prerequisite(s): NSCI 231 and NSCI 232 and NSCI 233 and EDD 485*
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior
Can enroll if Level is Undergraduate

EXPS 443  Family/School/Community Collab  2 Credit Hours
Characteristics, roles, and functions of contemporary families are described. Various communication and training strategies designed to promote collaboration and teamwork within and between the school staff, the families, and community are described and practiced.
Family effectiveness assessment instruments and strategies are also described and practiced.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Junior or Senior

EXPS 450  Issues in STEM2 and STEM2 Ed  3 Credit Hours
The content of this course will provide students with experiences in issues related to STEM2 education (STEM2: Science, Technology, Engineering, Mathematics and Medicine). Topics addressed will include definitions of STEM2, the value of STEM2 to society, the integration of STEM2 fields, developmentally appropriate STEM2 activities for K-12 students, misconceptions of STEM2, STEM2 careers and local issues related to STEM2 in Michigan. Students will experience examples of STEM2 activities and will explore how STEM2 disciplines impact society. (YR)
Prerequisite(s): (MATH 104 or MATH 105 or MATH 113 or MATH 114 or MATH 115 or MATH 116 or MATH 131) and (NSCI 101 or NSCI 120 or NSCI 121)
Restriction(s):
Can enroll if Level is Undergraduate

EXPS 460  Capstone: Trnds & Iss Literacy  3 Credit Hours
This course is for pre-service teachers in the elementary certification program majoring in reading. In this course students will explore topical issues relevant to the teaching of literacy in preparation for becoming participating members in the professional community of literacy teachers.
Prerequisite(s): EDD 468 and EDD 419 and EDD 471 and EDD 467 and EDD 447 and EDD 448
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Senior
Can enroll if College is Education, Health, and Human Services

EXPS 493  Simulation and Gaming  1 to 3 Credit Hours
This course focuses on simulation and gaming as approaches to learning which are fundamentally different from methods traditionally used in education, industry, business, and psychology. Students will have the opportunity to examine many different types of simulations and games and to participate in selected ones. They will also be able to design one to use in their own area of interest.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
EXPS 498 Exploring Writing/Child&Yng Ad  3 Credit Hours
This course provides a theoretical foundation for writing instruction of children/adolescents in grades K-8. Emphasis is placed on modeling, instructional strategies, and assessment for supporting student writers that pre-service and in-service teachers can use to facilitate students' development of written language across various genres. TB clearance, criminal background check, and bloodborne pathogens/infectious diseases training required.

Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Graduate

EXPS 499 Individ Res in Lit in Educ  1 to 3 Credit Hours
Requires the student to initiate and carry to completion a literature in education-based research project under the supervision of a faculty member. May be elected more than once for a total of not more than 3 credits as approved by advisor. Written permission of instructor. (F,W,S).

Restriction(s):
Can enroll if Class is Undergrad Certification only or Junior or Senior
Can enroll if Level is Undergraduate

Other Content
*  An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

*  An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Finance (FIN)

FIN 200 Personal Finance  3 Credit Hours
To survey financial planning for the individual. Topics include: bank relations, credit, borrowing money, savings, budgeting, investments, stocks and bonds, mutual funds, insurance, real estate, annuities, social security, income taxes, wills, trusts and estate planning.

Restriction(s):
Cannot enroll if Class is Graduate
Can enroll if College is Business

FIN 401 Corporate Finance  3 Credit Hours
Introduces the financial goals of a corporation with particular attention to the creation of value. The time value of money and the valuation of financial and real assets receive particular attention. Additional topics include risk and return, market efficiency, short-term financial management, and the domestic and international economic environments.

Prerequisite(s): ACC 298 and ECON 201 and ECON 202 and (DS 300* or DS 301* or IMSE 317*)

FIN 402 Advanced Corporate Finance  3 Credit Hours
To provide the study of advanced topics, with particular attention to capital structure and dividend policy. Additional topics such as hedging, option pricing, agency theory, methods of financing, and corporate control will be presented. Global aspects of these topics will be addressed where appropriate. (YR).

Prerequisite(s): FIN 401 and (DS 300 or DS 301)

FIN 406 Fin Mkts and Institutions  3 Credit Hours
This course will introduce students to the financial markets, institutions, and instruments. The contents consist of the role and importance of the financial markets, interest rate determination and security valuation, the functions of money, bond, mortgage, stock, foreign exchange and derivative securities markets, the activities of financial institutions such as insurance companies, securities firms and investment banks, hedge funds, and pension funds, and management of credit and interest rate risks on the balance sheet of financial institutions. Familiarity with these topics is necessary for students to be competent in their future professional career in finance. (YR)

Prerequisite(s): FIN 401 and (DS 300 or DS 301)

FIN 407 Investment Fundamentals  3 Credit Hours
To study the current investment scene and analyze the characteristics of securities and the role in investment strategies. Topics include: securities markets, bonds, stocks, options, investment strategies, portfolio theories and management.

Prerequisite(s): FIN 401 and (DS 300 or DS 302)

FIN 411 Financial Planning  3 Credit Hours
This course introduces students to the primary areas of personal financial planning and helps them prepare for the professional financial planning examinations. Topics include overview of the financial planning process, analysis of clients' needs; principles of personal income taxation; investment analysis and planning; retirement and estate planning; insurance planning and major types of insurance, ethics and standards of professional practice; and quantitative methods used in the analysis and derivations of decision rules. This course is designed for students who consider a career in financial advising, as well as those who are interested in managing their own personal finances. Students will practice critical thinking and business communication through written presentation of case analysis and recommendations. (YR)

Prerequisite(s): FIN 401 and (DS 300 or DS 301)

FIN 412 Retirement Planning  3 Credit Hours
This course introduces students to the nature of retirement planning analysis and the functions of major retirement plans and other investment-oriented employee benefits, as well as discusses advantages and disadvantages of the various wealth accumulation and tax deferral alternatives. Topics include the administration, characteristics and distributions of qualified corporate retirement plans such as pension and profit sharing plans; non-corporate retirement programs such as IRAs and Simplified Employee Pension (SEPs) plans. In addition, stock options, non-qualified deferred compensation plans, and other non-pension related benefits, as well as recent legislation will be examined. This course prepares students for career pursuit in financial advising or human resources management, as well as for the professional financial planning examinations. Students will practice critical thinking and business communication through written presentation of case analysis and recommendations. (YR)

Prerequisite(s): FIN 401 and (DS 300 or DS 301) and FIN 411*
FIN 443  Com Bank: Functn and Operatns  3 Credit Hours
The topics to be included in the course are: commercial bank management, loan portfolio management and international banking. Specific aspects of the commercial banking environment, such as legislation and regulation, are also covered.
Prerequisite(s): FIN 401 and (DS 300 or DS 301)

FIN 445  Corporate Fin Models and Apps  3 Credit Hours
This course focuses on the analysis of financial decisions by applying theories and models to practical problems and cases. The subject coverage includes capital budgeting and financing (cost of capital, capital structure, dividend policy, etc.), working capital management (credit, inventory, bank relations, etc.), and other special topics (e.g., mergers and acquisitions). The coursework is appropriate for students seeking careers in corporate financial management, commercial lending, and investment banking.
Prerequisite(s): FIN 402 and (DS 300 or DS 302)

FIN 447  Derivative Markets  3 Credit Hours
Going beyond investment fundamentals, the focus of this course is on the more speculative aspects of investment. Speculative securities (such as options, warrants, and convertibles) and commodity futures (including financial and currency futures) are covered. The structure of the speculative markets and the role of speculation, such as hedging, risk-shifting, and the establishment of future-spot price relationship are analyzed in the context of a competitive market environment.
Prerequisite(s): FIN 401 and (FIN 402 or FIN 407 or FIN 443) and (DS 300 or DS 302)

FIN 448  Real Estate Financing  3 Credit Hours
The purpose of this course is to introduce the student to the different types of mortgages, the sources of real estate loans and the workings of the secondary mortgage markets. It will also cover the application, loan processing, underwriting, and closing processes as well as closely related topics such as property appraisal and insurance, title insurance, and foreclosures.
Prerequisite(s): FIN 401

FIN 456  Fixed Income Securities  3 Credit Hours
The fixed income market, accompanied by the introduction of sophisticated financial engineering techniques, has grown enormously over the last two decades. Today, the fixed income market has been a vital segment of the global financial market. This course covers major topics associated with this market, including bond pricing, yields, and volatility; term structure of interest rates and yield curve; market structure and analytical techniques for Treasury, municipal, corporate bonds, mortgage-backed securities, asset-backed securities, and bond with embedded options. The fundamental objective of this course is to help students develop analytical skills for pricing fixed income securities and managing interest rate risk. In addition, materials covered in this course are compatible with the Common Body of Knowledge in Analysis of Debt Investments that is required by the Chartered Financial Analysts (CFA) examination. Students will not receive credit for both FIN 456 and FIN 656.
Prerequisite(s): FIN 407 and FIN 447 and (MATH 113 or MATH 115 or MPLS with a score of 116)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Business
Can enroll if Major is Finance

FIN 484  Seminar: Financial Management  1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members. Permission of College of Business.
Prerequisite(s): FIN 401

Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

FIN 494  Research:Financial Mgt  1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit. Permission of College of Business.
Prerequisite(s): FIN 401

Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

French (FREN)

FREN 101  Beginning French I  0 or 4 Credit Hours
First course in a two-course elementary French sequence. Listening comprehension, speaking, reading, writing, and culture are emphasized. Course materials promote the use of language to communicate with others and to function in the French-speaking world. (F).

FREN 102  Beginning French II  0 or 4 Credit Hours
Second course in the two-course elementary sequence. Continued emphasis on culture and the four skills of listening, speaking, reading, and writing. (W).
Prerequisite(s): FREN 101 or FPL with a score of 102 or FPL with a score of 201 or FPL with a score of 202 or FPL with a score of 301 or FPL with a score of 302

FREN 201  Intermediate French I  0 or 4 Credit Hours
An intermediate language course designed to increase the student’s ability to read, speak, and write French. The course will utilize a wide range of reading selections representative of modern French prose as the basis for class discussions and written assignments. A systematic review of grammar and oral exercises should enable the student to make definite progress in conversation and composition. (F).
Prerequisite(s): FPL with a score of 201 or FPL with a score of 202 or FPL with a score of 301 or FPL with a score of 302 or FREN 102

FREN 202  Intermediate French II  0 or 4 Credit Hours
Continuation of FREN 201. Further readings in modern French prose, extensive practice in conversation and composition. (W).
Prerequisite(s): FREN 201 or FPL with a score of 202 or FPL with a score of 301 or FPL with a score of 302
FREN 234  French Conversation  1 to 2 Credit Hours
Development of conversational skills through discussion of contemporary readings and the use of communicative activities and games. Emphasis will be placed on vocabulary acquisition by students, on improving their pronunciation, and on increasing their overall fluency in French. (S).
Prerequisite(s): FREN 102

FREN 235  French Conversation and Culture  2 Credit Hours
Intensive practice in developing conversational skills through a coordinated program of classroom and field activities in France. Students will read and discuss current materials of various sorts and will perform skits and other oral exercises designed to increase their fluency in French. A series of planned, extracurricular activities (visits to museums and historical monuments, viewing of plays, interviews of average Frenchmen) will enable students to profit from direct contact with the French and their culture.
Prerequisite(s): FREN 102

FREN 290  Topics in French  1 to 3 Credit Hours
Examination of problems and issues in selected areas of French. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

FREN 301  Advanced Conversation and Comp  3 Credit Hours
An advanced course in conversation, composition, and syntax. Numerous oral reports and weekly written assignments based on readings from current sources; discussion of a recent French motion picture; translation exercises and the study of specific topics in French grammar. (F).
Prerequisite(s): FREN 202 or FPL with a score of 301 or FPL with a score of 302

FREN 302  Advanced Conversation and Comp  3 Credit Hours
Continuation of FREN 301. (W).
Prerequisite(s): FPL with a score of 302 FREN 301 or FPL with a score of 302

FREN 305  Language of Business  3 Credit Hours
A systematic presentation of the vocabulary and conventions of business French. Students will receive extensive training in composing business letters, reports, vitas, and similar texts. They will be exposed to French practices in correspondence, accounting and record keeping. They will also be required to translate various business documents from English to French (and vice versa) and to familiarize themselves with the specialized vocabulary of computers. (OC).
Prerequisite(s): FREN 301

FREN 306  Cult Intro to French Business  3 Credit Hours
An introduction to the practices and organization of the French business world. Students will learn how a typical French firm is structured and how business is normally conducted in France. Special attention will be given to those differences in organization and operation which contrast French businesses with our own. The class will also examine the impact of history and general cultural attitudes on French business practices of today. (OC).
Prerequisite(s): FREN 301

FREN 308  Advanced Writing  3 Credit Hours
Intensive practice in writing expository prose in French. Students will complete a wide variety of writing assignments (resumes, critical analyses, explications de texte, and the like) over the course of the semester. Class sessions will be devoted to the discussion of student papers and technical issues related to effective writing. Students should expect to prepare several drafts of each assignment under the close supervision of the instructor. (OC).
Prerequisite(s): FREN 301

FREN 330  Franc Lit: Md Ages-18 Century  3 Credit Hours
A survey of French literature through the Enlightenment based on the study of individual masterpieces of principal French authors: Villon, Rabelais, Montaigne, Pascal, Moliere, Racine, Montesquieu, Voltaire, and Rousseau. (OC).
Prerequisite(s): FREN 301

FREN 331  Franc Lit: 19th-20th Century  3 Credit Hours
The sequel to FREN 330. A survey of French literature from Romanticism to the Theater of the Absurd and the nouveau roman. Writers studied will include Balzac, Stendhal, Baudelaire, Flaubert, Proust, Gide, Camus, Sartre, Beckett, and Sarraute. (OC).
Prerequisite(s): FREN 301

FREN 332  French Cinema  3 Credit Hours
A survey of French films from the experiments of the turn of the century to the trends of the present day. Representative silent films, “classic” and “new-wave” movies of the 1930’s and 50’s, as well as contemporary productions will be presented in their cultural context and the contributions of major French directors to filmmaking will be highlighted. Attention will also be given to the basic elements of film as a means of expression: camera angle, distance, movement, and editing. (OC).
Prerequisite(s): FREN 301

FREN 334  Workshop in French Theater  3 Credit Hours
This course will provide a brief survey of representative masterpieces of the French theater. Students will be required to read and analyze a number of celebrated plays and then to perform selected scenes from them. (OC).
Prerequisite(s): FREN 301

FREN 336  French Civilization of Past  3 Credit Hours
An introduction to the civilization of France (from the Middle Ages to the 20th Century). This course will examine the social and historical developments and the accomplishments in the arts and literature that have combined to shape the French nation. (OC).
Prerequisite(s): FREN 301

FREN 337  France in the 20th Century  3 Credit Hours
An introduction to France of the Third, Fourth, and Fifth Republics. This course will examine the major political, social, and economic issues of France of the 20th Century as well as its contributions to literature and the arts. (OC).
Prerequisite(s): FREN 301

FREN 338  France of Today  3 Credit Hours
An exploration of various facets of contemporary French civilization. Although students will consider historical and political developments since World War II, special attention will be given to the values and attitudes of the French, to the contrasting modes of life in Paris and the provinces, and to important forms of popular culture. (OC).
Prerequisite(s): FREN 301

FREN 339  Francophone Lit and Civil  3 Credit Hours
An introduction to twentieth-century award-winning texts from the Caribbean, Canada, North Africa and West Africa. Students will analyze the strategies through which these powerful, dramatic, post-colonial writers address such issues and themes of universal relevance as love and the search for identity, while also expressing the experience and culture realities of his or her own country. Representative authors include Birago Diop, Simone Schwartz-Bart, Arlette Coustre, Anne Hebert, Roch Carrier, Michel Tremblay, and Tehar Ben Jelloun. (OC).
Prerequisite(s): FREN 301
**FREN 375** Parisian Itineraries 3 Credit Hours

Parisian Itineraries follows cultural developments in Paris, and literary responses to the specific nature of urban development in France in the 19th and 20th century. Students consider urban planning and expansion in Paris through cultural, historical, social and literary approaches, and analyze the connections between cultural voices and urban progress. The object of this course is thus the lived experience of Parisian urbanization through the various artistic representations.

**Restriction(s):**

Can enroll if Class is Freshman or Sophomore or Junior or Senior

**FREN 385 French Across the Curriculum 1 Credit Hour**

Course is attached to an upper-level course in another discipline and taken concurrently with it. Course materials in French are related to the subject matter of the second course and are discussed with a French-area faculty member. Materials are also integrated into the assignments of the second course. (F,W).

**Prerequisite(s):** FREN 202

**FREN 388 Socio-Cltrl Iss Contemp France 3 Credit Hours**

The course concentrates on a series of socio-cultural issues that are debated in France today, as well as on a number contemporary cultural and artistic phenomena. Particular attention is given to discourses on otherness and on the ways in which French cultural production and media constructions have reflected, reinforced, reshaped and, in some instances, contested the country’s past and current dominant ideologies, and identities.

**Prerequisite(s):** FREN 301

**FREN 390 Topics in French 3 Credit Hours**

Examination of problems and issues in selected areas of French. Title as listed in schedule of classes will change according to content. Course may be repeated for credit when specific topics differ.

**FREN 399 Independent Studies 1 to 3 Credit Hours**

Readings or analytical assignments in the humanities in accordance with the needs and interests of those enrolled and agreed upon by the student and advising instructor. May be repeated for a maximum of 6 credit hours. (F,W).

**FREN 408 Writing and Translating 3 Credit Hours**

A course designed to increase the written fluency of students who have already assimilated the advanced grammatical concepts introduced in the 301-302 sequence. Students will prepare weekly written assignments and will translate and analyze passages written in various styles. (OC).

**Prerequisite(s):** FREN 301 and FREN 302

**FREN 490 Topics in French 1 to 3 Credit Hours**

Examination of problems and issues in selected areas of French. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

**Prerequisite(s):** FREN 301

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:

- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally.

---

**Geography (GEOG)**

**GEOG 201 Cultural Geography 3 Credit Hours**

Overview of the major components of culture such as language, religion, agriculture, settlement patterns, and related landscape features in a spatial context. Emphasis on how various cultures perceive and interact with the environment. (F).

**GEOG 203 Weather and Climate 3 Credit Hours**

The controls and conditions of Earth’s weather and climate including atmospheric circulation, precipitation processes, severe weather, climatic regions, and climatic change. (F).

**GEOG 204 Landforms 3 Credit Hours**

Processes and agents that shape the landscapes and landforms of the Earth’s surface. The discussion of landforms is divided into two parts: (1) constructive processes and their spatial distribution and (2) gradational processes and their spatial distribution. (W).

**GEOG 205 Geography of the United States 3 Credit Hours**

A regional analysis of the United States that stresses the difference in the physical elements of landscapes that explain differences in economic development, cultural attainment, and land use and which, in turn, motivate regional interdependencies and interrelationships. (W).

**GEOG 206 World Regional Geography 3 Credit Hours**

World Regional Geography includes a systematic study of the world’s geographic realms and regions, including Europe, Russia, Australia-New Zealand, East Asia, South Asia, Southwest Asia, N Africa, Subsaharan Africa, Middle and South America. Geographic concepts, such as map reading and spatial analysis, are first introduced. Then, the world is classified into geographic realms and regions using both physical and social criteria. Each region results from a unique interaction between the human societies and the physical environment. The physical, cultural, political, economic and social features of each region are studied, along with any special regional concerns or problems.

**GEOG 300 Urban Geography 3 Credit Hours**

The geography of human settlement and urbanization. Particular emphasis is placed on human transformation of the physical environment, and resource use throughout history from ancient civilizations to modern megalopolises. Universal urban challenges such as sprawl, pollution, congestion, crime, poverty, etc., are addressed.

**GEOG 302 Mapping Our World 3 Credit Hours**

Mapping our World provides an introduction to geospatial techniques and the important roles spatial data play in today’s world. This course introduces the students to basic concepts of geographic information systems, remote sensing and cartography. A focus of the course is on map analysis and map design.

**GEOG 305 Intro to GIS 4 Credit Hours**

The basic elements of geographic information systems, map interpretation and map design. Principles and methods of spatial data collection, analysis, and display are introduced. (W)

**Prerequisite(s):** GEOG 302

**Corequisite(s):** GEOG 305L

**GEOG 305D Intro to GIS & Cartogrphy Dis 0 Credit Hours**

Required discussion session for GEOG 305.

**Corequisite(s):** GEOG 305

**GEOG 307 Geography of Western Europe 3 Credit Hours**

An analysis of the strengths, weaknesses, interrelationships, and interdependence of selected countries of this economically advanced region. (OC).
GEOG 310  Economic Geography  3 Credit Hours
Spatial aspects of the ways people make their living. Discussion of
the spatial distribution of resources and wealth at various scales.
Introduction of site selection and location analysis.

GEOG 315  Political Geography  3 Credit Hours
The spatial dimensions of political activity from the local to the global
scale. Themes include: control of territory, relations among political
entities, and political ideology.

GEOG 320  Global Climate Change  3 Credit Hours
This course explores concepts and current thinking on global climate
change and environmental impacts. It covers the history of Earth’s
climate, causes of climate change and current research attempting to
forecast change. The biotic, economic, and social implications of climate
change are discussed. (AY)

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

GEOG 325  Global Cities  3 Credit Hours
The course focuses on comparing the urban form, economies, and
social life in cities around the world. The societies of the westernized,
developed world are already highly urbanized. Cities outside of this
sphere are generally growing much faster and experiencing greater social
and economic upheaval as a result. Understanding non-North American
urbanization is a vital part of understanding cities in general. (F)

GEOG 327  Michigan Geography  3 Credit Hours
A geographic study of landforms, waterways, natural resources,
landmarks and economic activities that contribute to the physical
and cultural landscapes of Michigan. Population, industry, agriculture,
recreation and tourism will all be considered. (S, W, YR)

GEOG 390  Topics in Geography  1 to 3 Credit Hours
Selected topics to be announced. (OC)

GEOG 390B  Topics in Geography  1 to 3 Credit Hours
TOPIC TITLE: Global Climate Change. This course explores concepts and
current thinking on global climate change and environmental impacts.
It covers the history of Earth’s climate, causes of climate change and current research attempting to
forecast change. The biotic, economic, and social implications of climate change are discussed.

GEOG 399  Independent Study  1 to 3 Credit Hours
Readings or analytical assignments in accordance with the needs and
interests of those enrolled and agreed upon by the student and the
advising instructor.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Geology (GEOL)

GEOL 110  Urban Geology  3 Credit Hours
The study of how the geosciences can be used to solve community-
based environmental problems. Taught within the context of the Rouge
River watershed, one of the most urbanized watersheds in the country,
the focus of this 3-week course is water and watersheds. Classroom
lectures are combined with extensive field work, field trips and guest
speakers. Taught as a summer II mini course in July. Open only to high
school juniors and seniors participating in the Geosciences Research
Institute.

GEOL 118  Physical Geology  4 Credit Hours
An introduction to the study of geologic processes at work in the earth’s
interior and on its surface. Rocks and minerals, the origin and evolution
of the continents, and the gradual and catastrophic processes that shape
surface and bedrock features. Three hours lecture, three hours laboratory.
(W).

Corequisite(s): GEOL 118L

GEOL 218  Historical Geology  4 Credit Hours
A generalized study of the history of the earth, with emphasis on the
fossil record of life development, the stratigraphic sequence of deposits
and paleogeography. Laboratory work will include the study of geologic
and topographic maps and fossils of prominent invertebrate phyla. (YR).

Corequisite(s): GEOL 218L

GEOL 303  Geodesy & Cartog. Principles  3 Credit Hours
Understanding the shape, texture, and structure of the Earth’s surface
and interior is of critical importance for studying and visualizing the
physical world around us. This course focuses on the physical and
geographical properties of the Earth’s surface, how these properties are
measured, and how they are effectively displayed as maps and other
visual representations. Surveying, Global Positioning Systems (GPS), and
cartographic design both microscales (e.g., meter) and macroscales (e.g.,
light year) are heavily emphasized. (F, YR)

GEOL 305  Intro to GIS  4 Credit Hours
An introductory course that examines the digital representation,
manipulation, and analysis of geographic data, with the emphasis on the
analytical capabilities that GIS brings solutions to geographic problems.
Students will explore and learn GIS principles using ESRI’s mapping
software, as well as complete a major GIS project.

Corequisite(s): GEOL 305L

GEOL 305D  Intro to GIS  0 Credit Hours
Required discussion session for GEOL 305.

Corequisite(s): GEOL 305

GEOL 313  Earth Materials  4 Credit Hours
This course provides a detailed look at the physical and chemical
components that constitute the Earth’s surface and subsurface.
Critical elements of mineralogy, igneous and metamorphic petrology,
sedimentology, and stratigraphy are covered. Laboratory sessions
allow students to master the use of a petrographic microscope and
sedimentary processes, among other related topics. Field sessions
allow for students to identify geologic materials in their natural exposed
settings. (W, AY)

Prerequisite(s): CHEM 134 and GEOL 118
**GEOL 332  Hazardous Waste Management  3 Credit Hours**
Environmental problems associated with solid and hazardous waste. Regulations governing the generation, transport, and disposal of hazardous waste. Waste management techniques, including reduction, reuse, recycling, treatment, incineration, and land disposal. Three hours lecture.

**Prerequisite(s):** GEOL 118 or ESCI 275

**GEOL 340  Remote Sensing  3 Credit Hours**
This course explores the acquisition, processing, and visualization of remotely derived data, with a particular emphasis on local and environmental applications. ENST 340 covers concepts and foundations of aerial and orbital remote sensing, visual interpretation, reflectance and emission spectroscopy, active and passive sensors, topography, and digital image processing software and techniques.

**GEOL 342  Physical Oceanography  3 Credit Hours**
An introduction to physical and chemical oceanography, fundamental marine processes and plate tectonics. Interactions between the oceans and atmosphere and the effect of greenhouse gases on the oceans and the role of physical processes in global climate change will be studied.

**GEOL 350  Geomorphology  4 Credit Hours**
This introductory course is designed to familiarize students with the fundamentals of river behavior and the general principles in fluvial morphology, sedimentation, and hydraulics and stream bank erosion. Applications of these principles are shown utilizing a stream classification system. Problem solving techniques for watershed management, stream restoration, non-point source pollution and integration of ecosystem concepts in watershed management are presented. A combination of both lecture and field applications are provided. (F, AY)

**Prerequisite(s):** GEOL 118 or (GEOG 203 and GEOG 204)

**Corequisite(s):**
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

**GEOL 370  Environmental Geology  3 Credit Hours**
Interactions between people and the physical environment. Geological hazards and natural processes, such as earthquakes, volcanism, floods, landslides, and coastal processes. Relationships between geology and environmental health, including chronic disease, water use and pollution, waste disposal, mineral resources, and energy use. Three hours lecture. (AY).

**Prerequisite(s):** GEOL 118

**GEOL 372  Energy Resources  3 Credit Hours**
Origin and development of fossil fuels (petroleum, coal, natural gas) and of radioactive ores used in nuclear power. Renewable and alternative energy sources, including hydro, solar, wind, biomass, and geothermal power. Environmental impacts of energy use. Three hours lecture. (AY).

**Prerequisite(s):** GEOL 118 or ESCI 275 or ESCI 301

**GEOL 375  Groundwater Hydrology  4 Credit Hours**

**Prerequisite(s):** GEOL 118

**Corequisite(s):**

**GEOL 377  Field Methods  1 Credit Hour**
A week-long intensive field course dealing with geological field methods and analysis of geological terrains. Use of Brunton compass and clinometer, recognition and identification of geological structures, preparation and interpretation of geological maps, and use of aerial photographs. May be repeated for credit when destination varies. Organizational meeting followed by one-week trip. (YR).

**Prerequisite(s):** GEOL 118

**GEOL 390  Current Topics in Geology  1 to 3 Credit Hours**
A course in special topics current to the field of geology. Topics and format for the course may vary. See current Schedule of Classes. (OC).

**Prerequisite(s):** GEOL 118

**GEOL 390A  Current Topics in Geology  3 Credit Hours**
TOPIC TITLE: Physical Oceanography. An introduction to physical and chemical oceanography, fundamental marine processes. Interactions between humans, the ocean and the atmosphere, including ocean pollution, the effect of greenhouse gases on the oceans and atmosphere, and the role of physical processes in possible global warming.

**Prerequisite(s):** GEOL 118

**GEOL 440  Advanced GIS Applications  3 Credit Hours**
This course offers an opportunity for students with a background in the fundamentals of geographic information systems (GIS) to apply the analytical capabilities of geospatial technology to model real-world situations in support of decision making. Particular emphasis is given to data development and management, spatial and statistical analyses, customization, and effective visualization.

**Prerequisite(s):** GEOL 305 or ESCI 305 or GEOG 305

**GEOL 470  Geodatabase Design & Mgmt  3 Credit Hours**
Full Title: Geodatabase Design & Management. This course focuses on the design, creation, and management of geodatabases. Topics include database theory, database models, spatial data standards, the collection and pre-processing of geospatial data, topology and topological relationships, metadata creation and storage, and cloud computing. (AY, F)

**Prerequisite(s):** GEOL 305 or ESCI 305 or GEOG 305

**GEOL 475  Contaminant Hydrogeology  3 Credit Hours**
Advanced lecture treatment of selected topics in subsurface hydrology including contaminant transport and fate of organic and inorganic constituents, aquifer test analysis, and the use of modeling in the analysis of selected case histories. (AY).

**Prerequisite(s):** GEOL 375

**Restriction(s):**
Can enroll if Class is Junior or Senior
GEOL 478  Geology of the National Parks  3 Credit Hours
Study of the geology (stratigraphy, structure and geomorphology) of major national parks. Specific parks to be visited varies from year to year, enabling the course to be repeated once for credit. Emphasis is placed on taking field notes, describing rock sequences in outcrop, geologic map reading and aerial photograph interpretation. Special attention is focused on the understanding and development of cratonic sequences, particularly the regional correlation (both lithostratigraphic and time-stratigraphic) of sandstone, shale and limestone facies, and small and large scale geologic features such as folds and faults. Depending on the national park being visited the students may explore paleoecographic and paleoecological evidence from fossils as well as sedimentary structures. This is a field-oriented course requiring a significant amount of physical exertion. (YR)  
Prerequisite(s): GEOL 118 and GEOL 218  
Restriction(s): Can enroll if Class is Junior or Senior

GEOL 490  Advanced Topics in Geology  3 Credit Hours
Current topics from various areas in pure and applied geosciences will be reported upon by students, faculty and guest speakers. May include extended field trips. (OC).

GEOL 498  Independent Study in Geology  1 to 3 Credit Hours
Library research and independent study performed under the guidance of a faculty member. Permission of instructor. (F, W, S).

GEOL 499  Laboratory and Field Research  1 to 3 Credit Hours
Directed laboratory or field research performed under the guidance of a faculty member. Four to twelve hours laboratory or field study. Permission of instructor. (F, W, S).

An asterisk denotes that a course may be taken concurrently.

German (GER)

GER 101  Beginning German I  0 or 4 Credit Hours
First course in a two-course elementary German sequence. Listening comprehension, speaking, reading, writing, and culture are emphasized. Course materials promote the use of language to communicate with others and to function in the German-speaking world. (F).

GER 102  Beginning German II  0 or 4 Credit Hours
Second course in the two-course elementary sequence. Continued emphasis on culture and the four skills of listening, speaking, reading, and writing. (W).  
Prerequisite(s): GER 101 or GPL with a score of 102 or GPL with a score of 201 or GPL with a score of 202 or GPL with a score of 301 or GPL with a score of 302

GER 105  Conversational German  2 Credit Hours
The course is designed to help students develop basic oral communication skills in German. Emphasis is on a maximum use of spoken German in real or simulated everyday situations during each class period. The essentials for grammar will be taught through patterns rather than analytical presentation. May not be used to fulfill the symbolic language requirement.

GER 106  Intermediate German I  4 Credit Hours
An intermediate language course in speaking, reading, and writing German. Class assignments and discussions will be based on a wide variety of material ranging from German language films to anthologies of German prose. There will be a review of grammar, but emphasis is on reading and discussion. (F).  
Prerequisite(s): GER 102 or GPL with a score of 201 or GPL with a score of 202 or GPL with a score of 301 or GPL with a score of 302

GER 202  Intermediate German II  4 Credit Hours
A continuation of GER 201, with an even greater emphasis on reading and speaking. (W).  
Prerequisite(s): GER 201 or GPL with a score of 202 or GPL with a score of 301 or GPL with a score of 302

GER 234  German Conversation  1 to 2 Credit Hours
Development of conversational skills through discussion of contemporary readings and the use of communicative activities and games. Emphasis will be placed on vocabulary acquisition by students, on improving their pronunciation, and on increasing their overall fluency in German. (OC).  
Prerequisite(s): GER 102

GER 301  Advancing Competencies I  3 Credit Hours
Focusing on a particular topic or topics relating to the German-speaking world, students will strengthen and expand their reading, writing, speaking, listening, and cultural competencies. Students will focus on developing strategies for listening and reading more advanced primary texts. They will have extensive practice in recognizing and imitating a variety of written and oral genres.  
Prerequisite(s): GER 202 or GPL with a score of 301 or GPL with a score of 302

GER 302  Advancing Competencies II  3 Credit Hours
Focusing on a particular topic or topics relating to the German-speaking world, students will strengthen and expand their reading, writing, speaking, listening, and cultural competencies. Students will focus on developing strategies for listening and reading more advanced primary texts. Students will have extensive practice in recognizing and imitating a variety of written and oral genres.  
Prerequisite(s): GER 301 or GPL with a score of 302

GER 305  German for the Professions  3 Credit Hours
Drawing on written and oral authentic texts, the course will focus on the proper forms of written and oral communication in a variety of professional settings in the German-speaking world. It will also stress appropriate reading and listening strategies with a focus on the potential future professions of the enrolled students.  
Prerequisite(s): GER 301

GER 306  Cross-Cult Comptncy&Professns  3 Credit Hours
An in-depth study of current professional practices as carried on between agencies in the English and the German-speaking worlds. Students will focus on cultural differences, thereby strengthening cross-cultural competencies at the same time deepening their speaking, listening, writing, and reading skills.  
Prerequisite(s): GER 301

GER 371  Germ Lit: Classic and Romantic  3 Credit Hours
Readings include works by Lessing, Schiller, Goethe, Meist, E.T.A. Hoffmann, and Novalis. Analyses in lectures, discussion and writing will try to illuminate the works themselves and the world views of their age. (AY).  
Prerequisite(s): GER 301
GER 372  Introduction to German Lit  3 Credit Hours
A survey of German Literature from 19th century realism to the contemporary post-modernism and neo-realism. Writers studied will include both canonical and non-canonical authors, for example, Gerhard Hauptmann, Marie-Luise Fleisser, Georg Kaiser, Irmgard Keun, Bertolt Brecht, Anna Seghers, Ilse Aichinger, and Christa Wolf. The class will be a combination of lecture and discussion with a substantial writing component. (AY).
Prerequisite(s): GER 301

GER 374  The History of German Cinema  3 Credit Hours
In this course, we explore the history of German cinema through primary and secondary texts on films from the silent period through unification. Concomitantly, we will read a Mary Fulbrook’s history of Germany in order to place these films within the proper historical contexts and in order to enable us to examine the ways in which German history has insinuated itself in all film genres. The film section highlights the major movement in German cinema since its inception and gives particular attention to the representations of German history and the ways in which German history makes itself apparent in a variety of genres. The class will also consider the interactions between German cinema and Hollywood through clips highlighted in lectures and student presentations. (OC).
Prerequisite(s): GER 301
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if Level is Undergraduate

GER 376  Contemporary German Cultures  3 Credit Hours
An exploration of the assumptions which underlie everyday life in German-speaking countries (Federal Republic of Germany, Austria, Switzerland). Topics include social intercourse, school systems, medicine, citizens’ understanding of nation, and individuals’ relationship to space. (YR).
Prerequisite(s): GER 301

GER 377  German Culture & Civilization  3 Credit Hours
Full Course Title: German Culture and Civilization-From the Romans to the Reformation- An introduction to the civilization of the German-speaking countries of Europe from the Middle Ages to the 20th Century. The course examines the arts, history, culture, and institutions that have shaped the Germanic societies.
Prerequisite(s): GER 301

GER 380  Praktikum  1 Credit Hour
This course will be offered in conjunction with a 300- or 400-level German literature, film, or cultural course in translation taught by a member of the German faculty. The one-credit course will be conducted entirely in German. Students will develop their language skills dealing with the topics of the course in translation. They will also be required to read related texts in German. Students who successfully complete the Praktikum and the corresponding German in translation course can receive four credits of German. The topics will vary depending on the English language content course. Students must be concurrently registered in appropriate 300- or 400-level courses taught by a German instructor. (OC).
Prerequisite(s): GER 301

GER 385  German Across the Curriculum  1 Credit Hour
Course is attached to an upper-level course in another discipline and taken concurrently with it. Course materials in German are related to the subject matter of the second course and are discussed with a German-area faculty member. Materials are also integrated into the assignments of the second course. (F,W).
Prerequisite(s): GER 202

GER 390  Topics in German  3 Credit Hours
Examination of problems and issues in selected areas of German. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

GER 398  Ind Studies in German Lit  1 to 3 Credit Hours
Readings or analytical assignments in German selected in accordance with the needs and interests of those enrolled. (F,W).

GER 399  Ind Studies in German Lit  1 to 3 Credit Hours
Readings or analytical assignments in German selected in accordance with the needs and interests of those enrolled. (F,W).

GER 490  Topics in German Lit and Civ  3 to 4 Credit Hours
Examination of problems and issues in selected areas of German studies. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

GER 499  Adv Individual Proj in German  1 to 4 Credit Hours
Advanced individual study project in German language, literature, or civilization may be pursued under the direction of a faculty supervisor. (OC).
Restriction(s):
Can enroll if Class is Senior or Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Global Cultures (GLOC)

GLOC 234  Japanese Economy & Business  3 Credit Hours
In this course, students can obtain fundamental knowledge on stylized facts of Japanese economy as compared with those in the US and some other countries, and understand economic theories to put profound interpretations on them. Stylized facts seem to be old and some of them may have been obsolete, although they contain essential logical points. However, they are still useful for understanding Japanese economic systems. Thus, students are required to discuss current conditions on Japanese economy and firm system, considering stylized facts and theoretical backgrounds. It is essential to distinguish between changing phenomena and unchanged principles. Students have an opportunity to take a tour to a factory in a leading company. In the final class, students have to give team presentations and individually submit a short essay on the topics provided or the ones they come up with. As for the structure of the classes, we cover fundamental stylized facts, economic theories (or theoretical frameworks), and data analyses (historically and currently). This course is composed of three parts: (1) Japanese economic system, (2) Japanese firm system and (3) Japanese macroeconomic conditions.
GLOC 301  Intro to Global Cultures  3 Credit Hours
The course introduces students to the various concepts and notions attached to the phenomenon known as globalization from several disciplinary approaches including history, political science, economic, cultural geography, environmental sciences, and anthropology. It, then, delves in to an in-depth examination of globalization and its ideologies, particularly the consensus as well as the controversies it engenders. The course particularly focuses on the relation between globalization and culture.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Level is Undergraduate

GLOC 325  Political Islam  3 Credit Hours
This course is designed as an introduction to the main issues and themes in the study of political Islam and Muslim Politics, providing a broad overview of the pertinent key concepts and issues. It offers a historical approach to the study of political Islam, and touches upon the nineteenth century Islamic revivalism. It also explores diversity in contemporary Islamic thought and global Islamist movements.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Health Policy Studies (HPS)

HPS 301  Intro to Health Policy  3 Credit Hours
The aim of this course is to provide students with an overview of the U.S. health care system, its components, and the policy challenges created by its organization. We will focus on the major U.S. governmental and non-governmental political and policy players, health policy institutions and important issues that cut across institutions, including private insurers and the federal/state financing programs (Medicare and Medicaid/SCHIP). (F,W)

HPS 336  Perspectives in Women's Health  3 Credit Hours
Topic: Perspectives in Women's Health. This course examines women's health issues across the human lifespan, using feminist and sociocultural perspectives. Topics to be explored include the social construction of women's sexuality, reproductive options, health care alternatives and risk for physical and mental illness. Attention to the historical, economic, and cultural factors that influence the physical and psychological well-being of women is an underlying theme. (F,W,Y)
Restriction(s):
Cannot enroll if Class is Freshman

HPS 364  Health Policy and Admin  3 Credit Hours
A survey of the structure and processes of health administration in America, including analysis of current issues in health policy. (F, W, S).
Prerequisite(s): HPS 301

HPS 390  Topics in Health Policy Stds  3 Credit Hours
Special topics course taught periodically. (F,W,S)
HPS 404  Financing Health & Medical Sys  3 Credit Hours
The American health care system faces two problems: access to health services and high and rising costs. This course looks at the problems of uninsured citizens as well as the strains placed on health care facilities in providing services for them. Europeans have dealt with problems of access and cost controls through universal health care coverage and the course takes up various models in use today. The course also looks at American health insurance and "managed care" programs such as HMOs and PPOs as methods of providing health coverage as well as controlling costs. The course introduces students to services provided by the government including Medicare, Medicaid and State Children's Health Insurance Program (SCHIP). Students will learn the basics of creating a budget under constraints such as contractual limitations and Diagnosis-Related Groups (DRGs). Offered once a year, ordinarily in the Winter semester. Students cannot receive credit for more than one of the following: HPS 404, HPS 451, HPS 504, HPS 551, or PADM 451.
Prerequisite(s): ECON 201
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

HPS 405  Healthcare Administration  3 Credit Hours
This course introduces students to administrative models and skills that can be used at a supervisory level. These conceptions include strategic planning, marketing, organizational communications, quality assurance, project management, and team skills, supervision, and evaluation, conflict resolution, and office cultures and politics. A critical and historical perspective is used to understand the origins and meanings of these conceptions and the extent to which they correspond with the service mentality of health and human services. Applications to the health and human services will be central to the course.
Prerequisite(s): HPS 440
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

HPS 410  Quantitative Research  4 Credit Hours
An introduction to methods of data collection and analysis. Elementary statistics data are analyzed using computerized statistics programs. A discussion of research design and the philosophy of social science is also included. Students cannot receive credit for both HPS 410 and HPS 510. (F,W,S).
Prerequisite(s): SOC 200 or SOC 201

HPS 412  Principles of Epidemiology  3 Credit Hours
The study of the frequency and distribution, as well as the causes and control, of disease in human populations. Using data analysis tools, one can identify causes of disease and the effects of prevention and treatment. This course is an application of research design to determine the extent to which environment (toxins, for instance), heredity, childhood development, and lifestyle influence morbidity and mortality rates.
Prerequisite(s): (SOC 410 or HPS 410 or CRJ 410)
Restriction(s):
Cannot enroll if Class is Post-baccalaureate NCFD or Graduate
Can enroll if Level is Undergraduate

HPS 430  Health Behavior & Health Educ  3 Credit Hours
This course provides an overview of social and behavioral science theories that guide the development of health education and promotion interventions aimed at preventing, reducing, and eliminating public health problems. Part one of the course describes the relationship between behavior and health, through a review of several current health problems faced by people in the United States. Part two presents a survey of health behavior theories ranging from those aimed at individual behavioral change to community health education efforts. The final part of the course looks at the application of theory to real-world health promotion and education interventions. Students will learn how social and behavioral theory informs intervention design, implementation, and evaluation.
Restriction(s):
Cannot enroll if Class is Freshman

HPS 435  Obesity and the Lifecourse  3 Credit Hours
This course aims to introduce students to the fundamentals of the lifecourse perspective on health, while using obesity as a unifying example to illustrate its theoretical linkages to individual and population health, the practical implications for the administration and financing of the health care system, and for framing policy options. The course highlights the differential impact of obesity on (1) the health and socioeconomic achievement of individuals at various stages in the lifecourse; (2) the population health and economic needs or opportunities, as derived from the lifecourse profile of a specific population (i.e., age distribution and aging trends) and in the context of a changing structure of society; and (3) the demand for healthcare services and other stressors on the healthcare system. The course identifies the rationale, goals, scope, design, and potential for successful implementation of obesity-reducing policy interventions at different points during the lifecourse.

HPS 436  Reproductive Health Policy  3 Credit Hours
This course provides a comprehensive introduction to the field of reproductive health in the U.S. Understanding women's reproductive health requires consideration of the intersections of gender, race, class, culture, geography, economic status, and nation within a sociopolitical context. The course introduces students to the historical trends in the regulation of women's fertility and reproductive health. Readings draw from a number of different disciplines, including: law, medical studies, history, social sciences, and personal narratives to critically examine the intent and impact of current standards for reproductive health policy and practice. Topics include: reproductive justice, contraception, pregnancy, reproductive control, and family leave. Course discussions include a focus on health policy and activism to affect change related to women's reproductive health, all within a framework of reproductive justice. A major emphasis is on developing critical thinking skills that can be applied to issues of women’s reproductive health in order to educate and empower students to become proactive healthcare consumers.
Prerequisite(s): SOC 201 or ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 303

HPS 440  Medical Sociology  3 Credit Hours
An analysis of health and illness behavior from the point of view of the consumer, as well as medical professionals, the structure, strengths and weaknesses of the medical care delivery system in the U.S.; the impact of culture and personality on illness behavior; and a study of the institution of medicine and activities of health care professionals. Students cannot receive credit for both HPS 440 and HPS 540. (F).
Prerequisite(s): SOC 200 or SOC 201
HPS 442  Medical Ethics  3 Credit Hours
An examination of moral issues in medicine. Among the problems to be considered are truth-telling and paternalism in the doctor-patient relationship, psychosurgery and behavior control, death and euthanasia, the allocation of scarce resources, and genetic counseling and control. Specific attention will be given to ethical theories and to philosophical concepts such as rights, autonomy, and justice. Students cannot receive credit for both HPS 442 and HPS 542. Prerequisite(s): any previous course in Philosophy or permission of instructor. (F, W, S).

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 340 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 445 or PHIL 485 or PHIL 490

HPS 448  Comparative Health Care System  3 Credit Hours
An introduction and overview of the English, Swedish, and People’s Republic of China health care systems. Focus on cultural and other organizational characteristics, unique features, approaches, and ability to solve problems. Emphasis on how the three systems help us understand the American health care system. Students cannot receive credit for both HPS 448 and HPS 548. (F, W, S).

Prerequisite(s): SOC 200 or SOC 201
Restriciton(s):
Can enroll if Level is Undergraduate

HPS 456  Health Care and the Law  3 Credit Hours
A sociological study of legal issues in health care, including regulation of hospitals, consent for treatment, confidentiality, experimentation, family planning, children’s rights, access to health care. The emphasis will be on the organizational and personal consequences of legal requirements. Junior/Senior standing is a requirement. Students cannot receive credit for both HPS 456 and HPS 556. (F).

Prerequisite(s): SOC 200 or SOC 201 or POL 364

HPS 475  Diversity Issues in Mental Health  3 Credit Hours
Diversity Issues in Mental Health explores varied cultural descriptions and models of mental illness. By focusing on the ways that culture shapes how people experience, and respond to, mental illness this class explores cultural representations of mental illness, ranging from discrete illness resulting from a chemical imbalance to a profound threat to order. We seek to understand the cultural, personal, and political underpinnings of mental illness and medical practices in societies throughout the world. The course utilizes an interdisciplinary perspective, drawing from multiple sources of information regarding mental health issues, including feminism, psychiatry, history, sociology, and literature. Issues raised throughout the course include the ways gender, race, culture, religion, and stigma influence the diagnosis of mental illness, patterns of help-seeking behavior, formation of comprehensive mental health policy, and treatment options.

Prerequisite(s): WGST 303 or ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 336 or HPS 336

HPS 498  Independent Study  1 to 3 Credit Hours
Readings or analytical assignments in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor, which shall not duplicate a formal course offering. (F, W, S)

HPS 499  Independent Study  1 to 3 Credit Hours
Readings or analytical assignments in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor, which shall not duplicate a formal course offering. (F, W, S)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Health and Human Service (HHS)

HHS 200  Introduction to Public Health  3 Credit Hours
Introduction to Public Health (HHS 200) is the introductory professional course in the Public Health undergraduate program. This course identifies and explores the theoretical and practical issues in public health. Students successfully completing the course will have an understanding of the goals of public health. Students will receive a fundamental understanding of epidemiological study design and the role of data for public health research. They will also understand the impact of individual behaviors and the environment on health. Lastly, students will receive an introduction of the role of governmental agencies and policy on public health practice.

HHS 202  Mental Health Terminology  3 Credit Hours
Mental Health Medical Terminology orient students to mental health disorders. A brief clinical overview from a lay perspective orient students to the various mental disorders including mental retardation and learning disorders, behavioral disorders, anxiety disorders, substance abuse disorders, impulse control disorders and sleep disorders. A special emphasis will be made on the relationship between substance abuse problems and mental illness, as well as the physical aspects of drug use. Students learn the specific criteria for mental illness classification through use of The Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM 5). (OC)

HHS 250  Intro to Environmental Health  3 Credit Hours
This course introduces students to environmental health as a core discipline within the field of public health. It is for any student interested in how the environments where we live, work, and play may affect our health, and it is particularly applicable for those pursuing careers in public health, clinical health, or allied fields. Specifically, the course provides students with an introduction to environmental health science, communication, and policy. Students will examine many case studies to understand the patterns and implications of environmental risks and protective factors in communities through Metro Detroit and the U.S. related to several key pathways (e.g., air, water, climate, built environment). Throughout the semester, considerable attention will be given to causes and consequences of local and national environmental justice issues. Students will gain exposure to methods and resources they may use to assess and address environmental health concerns as scholars, activists, or practitioners. (W)
### HHS 349  Sobriety Credit  1 Credit Hour
The course uses a combination of seminar meetings, reflection writing, community engagement and experiential learning to emphasize the barriers and hardships faced by substance users who become involved in treatment, whether that involvement is mandatory or voluntary. Students are required to go through the same documentation procedures as those in treatment (and drug court) which require the presentation of a clean urine report and signed forms of attendance at AA or NA meetings. Students are asked to write weekly reflection papers detailing any difficulties that they experience. The class meets once a month in a seminar fashion to discuss the reflection writing. (OC)

### HHS 350  Comm Organizing for Health  3 Credit Hours
Community organizing is a process by which communities and organizations work together to identify common problems and objectives, acquire and mobilize resources, and create and implement actions to achieve their goals. Community organizing is of interest to sociologists, organization theorists, political scientists, health educators, and social psychologists, among others, as scholars who contribute to our knowledge of working in and with communities. Drawing on these various disciplines and real world case studies, this course examines community organizing theories, models, and principles and how they are used to improve community health and address health inequities. Several practical tools, strategies, and skills are also introduced, including: community assessment, coalition-building, participatory research and evaluation, media advocacy, and policy advocacy. A primary component of this course is the field experience, in which students are partnered with community-based organizations to identify, apply, and reflect on course concepts, while contributing to local community building efforts related to various health issues in the Detroit Metropolitan region.

**Restriction(s):**
Cannot enroll if Class is Freshman or Sophomore

### HHS 360  Responsible Drug Policy  3 Credit Hours
A study of the fundamentals needed for identifying both the appearance and effects of controlled substances. Students receive guides to controlled substances; their color, trade names and drug codes. Topics include a critical examination of the physiological, sociological and legal aspects of drug abuse and the many complexities which have developed as a direct or indirect result of drug policy in society. (OC)

### HHS 370  Medicine and Addiction I  3 Credit Hours
Medicine and Addiction I is part one in the sequence of introductory coursework in the Addiction Studies Certificate Program. This course provides the clinical orientation for addiction that frames much of the activities associated with screening and assessment of client behaviors as well as aspects of intervention and management of clients with addiction. Students successfully completing the course will identify and apply the assessment principles for individuals and families dealing with addiction. (OC)

**Prerequisite(s):** HHS 370

### HHS 371  Medicine and Addiction II  3 Credit Hours
Medicine and Addiction I is part two in the sequence of introductory coursework in the Addiction Studies Certificate Program. This course provides the clinical orientation for addiction that frames much of the activities associated with screening and assessment of client behaviors as well as aspects of intervention and management of clients with addiction. Students successfully completing the course will identify and apply the treatment principles for individuals and families dealing with addiction. (OC)

**Prerequisite(s):** HHS 370

### HHS 402  Public Health Internship  3 Credit Hours
This internship provides students the opportunity to apply classroom learning and gain hands-on experience inside a public health work environment at the Michigan Department of Community Health. The experience allows students to build valuable networking connections with local and state public health professional leaders as well as explore a career choice within public health. The course focuses on exposure to state and local program analysis while students develop marketable job skills and core public health competencies. (F, W, S)

**Prerequisite(s):** CHE 101 and HHS 200

**Restriction(s):**
Can enroll if Class is Freshman

### HHS 405  Population Health  3 Credit Hours
Population Health is defined as encompassing the health outcomes of a group of individuals as well as the distribution of those outcomes as related to the social determinants of health. Lectures, discussions, and group exercises focus on the impact of composite indicators in relation to population health including medical and health care, policy, genetics, behavior, social structures, and environmental factors. (F, W)

**Prerequisite(s):** HHS 200 or CHE 101

**Restriction(s):**
Cannot enroll if Class is Freshman

### HHS 406  Program Evaluation  3 Credit Hours
This course will provide an introduction to key concepts in program evaluation. Students will learn about the systematic steps involved in evaluating public programs for efficiency and effectiveness. The course will rely on case studies, text examples, and discussion.

### HHS 470  Information Science and Ethics  3 Credit Hours
Technological innovations in how individuals, organizations, and governments collect and share personal information have raised myriad concerns regarding how that information can be best protected. In today's highly networked world, individuals must acquire the knowledge and skills to engage with technologies in a safe and secure manner. This course provides an interdisciplinary exploration of the social, legal, ethical, and design challenges that arise when it comes to securing personal information and helping individuals maintain desired levels of privacy at home, work, and everywhere in between. (YR)

**Prerequisite(s):** MATH 115 and MATH 116 and (MATH 227 or MATH 217) and (MATH 205 or MATH 215) and CIS 150 and CIS 200 or CCM 200 or IMSE 200

### HHS 480  Arab American Health  3 Credit Hours
This course explores health issues, practices, risk factors, and disease in the Arab world and MENA region, as well as in Arab American communities in the United States and in the State of Michigan. The course focuses on the interaction of culture, geography, and health in the Arab world and the impact of cultural commonalities on the health of the generations of Arab immigrants to the United States. (W)

### HHS 490  Topics in Health  1 to 3 Credit Hours
Examination of problems and issues related to Health. Title as listed in Schedule of Classes will change according to specific content. Course may be repeated for credit when specific topics differ.
HIST 103  The World Since 1500 CE  3 Credit Hours
This course is survey of world history since 1500 CE. It emphasizes global social, political and economic trends, including the impact of nationalism, imperialism, industrialization, dictatorships, and democratic institutions.

HIST 104  Chinese Civilization  3 Credit Hours
A broadly based introductory study of China that exposes the student to a culture very different from our own and helps that student to understand Chinese institutions and values. It explores essential elements of Chinese civilization in comparative reference to the development of western civilization. Recommended for freshmen and sophomores. (YR).

HIST 105  Japanese Society and Culture  3 Credit Hours
A survey of Japanese society and culture in the traditional and modern periods, treated within the comparative framework of the history of the western world. It examines the development of traditional culture under Chinese influence and the subsequent interaction with modern western nations. Recommended for freshmen and sophomores. (YR).

HIST 106  An Intro to the African Past  3 Credit Hours
Survey of the social, economic, political, intellectual and cultural heritage of the African peoples from prehistory to the present. Emphasis on internal dynamics of African society through five millennia, as well as the impact of external forces on African life. Themes of particular interest: the roots of African culture, the trans-Atlantic slave trade and the African diaspora in the New World, the European Conquest, and the character of the colonial order and the ongoing struggle to end the legacy of alien domination. (YR).

HIST 108  Latin America: The Colonial Era  3 Credit Hours
This course will examine the colonial period in Latin American history from the Spanish and Portuguese contact and conquest to the early nineteenth-century wars for independence. It will focus on the background of European colonization, the process of interaction between Natives and Europeans, the growth and development of colonial society, the shifting uses of land and labor, and the roots of the nineteenth-century revolutionary movements. (OC).

HIST 109  Latin America: The Modern Era  3 Credit Hours
This course examines the modern era in Latin American history from the early nineteenth-century wars for independence to the present day. The course will focus on the formation of the Latin American states, the development and growth of Latin American culture and society, the legacy of slavery, the transition to capitalism in the region, the growth of export economies and dependency, and the rise of nationalism and revolutionary movements in the region. (OC).

HIST 111  The American Past I  3 Credit Hours
A survey of the economic, social, and political developments in America from the colonial era to the Civil War.

HIST 112  The American Past II  3 Credit Hours
A survey of the economic, social, and political developments in America from the conclusion of the Civil War through the present.

HIST 261  Western Culture I  3 Credit Hours
First of a series of four courses. An interdisciplinary course on the nature of the Western classical and Biblical traditions. It examines Western values, attitudes, history, art history, the roots of scientific thought, logic and social institutions such as the family and the state. Included are works of literature, history, philosophy, and art history. (YR).

Prerequisite(s): HIST 365
HIST 262 Western Culture II 3 Credit Hours
Second of four courses on Western Civilization required of all Honors Students. The course covers the period of the Middle Ages, Renaissance, and Reformation. Focus is on the ways in which Biblical and Classical traditions are preserved, adapted, transformed, or discarded under the pressures of new social and political formations. Materials are drawn from literature, philosophy, political theory, art. (W).
Prerequisite(s): HIST 365

HIST 263 Western Culture III 3 Credit Hours
This course covers the period from the 17th to 19th centuries. Focus is on the emergence of scientific thought, enlightenment political theory, romantic individualism, and the great 19th-century intellectual revolutions of Darwinism, Marxism, and feminism. Materials are drawn from literature, philosophy, and political and scientific writings. Third of four courses on Western Civilization required of all Honors Students. (YR).
Prerequisite(s): HIST 365

HIST 264 Western Culture IV 3 Credit Hours
Fourth of four courses required of all Honor Students. This course covers the period from late 19th-century to the present. Focus is on selected major issues of Western civilization in the modern era: science and human values, bureaucratic and totalitarian societies, psychoanalytical thought, feminism, nihilism, and existentialism. (YR).
Prerequisite(s): HIST 365

HIST 290 Topics in History 3 Credit Hours
Problems and issues in selected areas of history. Title listed in Schedule of Classes changes according to content. Courses may be repeated for credit when specific topics differ. (OC).

HIST 290A Topics in History 3 Credit Hours
TOPIC TITLE: Islamic Civilization to 1500. This is a standard introductory survey course, open to all students (hence the 290 instead of 390 listing). The course will cover the rise of Islam, the Umayad and Abbasid Caliphates, the history of the major political and sectarian schisms in the Islamic world, the migration/invasion of the Turks and the Mongols, sufism and the spread of Islam to other cultures. In addition to providing students with a practical overview of primarily Middle Eastern history since the rise of Islam, this course will explore the tension between the unity and diversity of Islamic civilization.

HIST 291 Topics in History 3 Credit Hours
Problems and issues in selected areas of history. Title listed in Schedule of Classes change according to content. Courses may be repeated for credit when specific topics differ. (OC).

HIST 291A Topics in History 3 Credit Hours
TOPIC TITLE: Islamic Civilization 1500 to the Present. This course will focus on the evolution of the multi-ethnic and multi-confessional Ottoman and Safavid/Qajar Empires into modern nation-states. In addition to providing students with a practical overview of the history of the Middle East since 1500, this course will examine two overarching questions: (1) how do accumulated traditions influence historical transitions; (2) how should we understand Islamic Civilization in the age of the modern nation-states?

HIST 300 The Study of History 3 Credit Hours
A study of the theories of historical analysis, styles of historical writing, and approaches to historical research. For history majors who should elect it as soon as they declare their concentration. (F.W).
Prerequisite(s): HIST 101 or HIST 102 or HIST 103 or HIST 104 or HIST 105 or HIST 111 or HIST 112 or HIST 113 or HIST 114

HIST 302 Russian Intellectual History 3 Credit Hours
Examines the historical myths that supported traditional Russian institutions, the literature that expressed these myths in symbolic form, the relationships between the social classes, and the conflict of values and goals in 19th-century Russia. Through the literature of the period the course explores social, intellectual, and political movements. The material is organized to consider both revolutionary and reactionary ideologies, origins of each, and the dynamics between them. (AY).

HIST 303 The Birth of Civilization 3 Credit Hours
Course examines the nature of the intellectual structure of the ancient Egyptians, Mesopotamians and Hebrews, and the social structures and historical developments of those cultures. Emphasis is on the evolution of civilization, the contrasts between Egypt and Mesopotamia, and most importantly, the shifts from mythical to philosophical thinking and discourse. (OC).

HIST 304 Studies in Det. Hist & Culture 3 Credit Hours
This interdisciplinary course explores the political, social, and cultural history of Detroit by examining ways various groups and classes have interacted with and been shaped by structures of power and influence. The course highlights trade and commerce, newcomers, and the influence of organizations and institutions within the contexts of labor, race, ethnic, and religious histories and current affairs, and examines how these fit into the evolution of Detroit from the 19th century to the present. Where pertinent the influence of national and international movements included.

HIST 305 The Arts & Culture of Detroit 3 Credit Hours
This interdisciplinary course explores the modern and contemporary cultural history of Detroit, examining the ways in which various population groups have been creative from the nineteenth century to the present. The course highlights the work of architects, designers, photographers, visual artists, poets, and musicians, and situates them in the broader cultural context of American art and history.

HIST 306 20th-C Russian Intel History 3 Credit Hours
Study of the relationships between revolutionary philosophies and actions; the dilemma of the Russian Revolution and the dilemma of its "success": the interaction of art, literature, and revolutionary movements. The course examines historical developments through novels, poetry, and philosophy. (AY).

HIST 307 Early Russian History 3 Credit Hours
A history of Russia from its prehistoric origins to the beginning of the 19th century, focusing on political and economic development, cultural and religious dynamics, foreign relations, and expansion in Asia. Stress is placed on political dynamics, including the forces of democracy in Russia's past. (AY).

HIST 308 Imperial Russia 3 Credit Hours
A history of Russia from the time of Peter the Great to the Russian revolutions of 1917. Attention is given to internal affairs, economic development, foreign relations, the failure of reforms, and the emergence of the revolutionary movement. (AY).

HIST 3085 History Internship 3 to 6 Credit Hours
The internship offers students experience in types of work available to liberal arts graduates. Regular meetings between the Internship Coordinator and the intern are required. Students can count up to 3 credits of History Internship (HIST 3085) as an upper-level history course in the degree requirements for the history major.
HIST 309  The Russian Revolutions  3 Credit Hours
Provides a broad overview of Russian history leading to the Russian revolutions of 1917, and a more detailed analysis of the revolutions of 1905 and 1917 and the subsequent development of the Soviet Union up to the present. Roots of present Soviet behavior will be sought in Russia's past. (AY).

HIST 3121  Polish History Since 1800  3 Credit Hours
This class offers students a chance to study 19th and 20th century Polish history. We look at how the most important ideals of what it means to be Polish? framed as a discussion between the Romantics and Positivists; the Fighters/Insurgents and Realists; the Old and New? affected the perceptions on honor, heroism, and Polish patriotism. A critical evaluation of these models leads us to evaluate the most important historical events in the last two centuries of Polish history? a country with impressive history of openness and multiculturalism as well as grim chapters of xenophobia. Centered on the role of individuals in shaping history, this class also reflects on the identity of Poles? citizens of a country located at the crossroads of Eastern and Western Europe.

HIST 3122  Poland - Study Abroad  3 Credit Hours
This is an interdisciplinary course led in major Polish cities. The trip begins in Krakow, and then continues to Warsaw, Lodz, and Gdansk. While there, the class will explore various and often conflicting, aspects of Polish and Polish-Jewish history. Visits to these historical sites will be accompanied by appropriate primary and secondary source readings and documents. During the course of the trip, students are expected to actively participate in ten scheduled seminar meetings as well as numerous lectures and workshops with local historians. While on the trip, students will have the opportunity to experience Polish culture; traveling on local transportation, sleeping in local hostels and hotels and eating in local cafeterias and various eateries.

HIST 3125  Modern East-Central Europe  3 Credit Hours
This class offers introductory knowledge about the history of 19th and 20th century East-Central Europe? often called the lands-in-between? in particular Poland, Hungary, Czechoslovakia, and Romania. It helps us understand major European phenomena from the perspective of smaller European states. We will focus on important historical moments, ideologies, and concepts that formed the area and affected the local identities.

HIST 3130  Armenia Ancient Medieval World  3 Credit Hours
The course is a general survey of Armenian history and culture from the pre-historic period to the early sixteenth century, with emphasis on Armenia’s political, economic and cultural interrelationships with other countries and peoples in the Near and Middle East, Europe and Central Asia. The course analyzes how the major political and demographic shifts in world history impacted Armenia and the Armenians. Each era of Armenia history is discussed in terms of developments in the surrounding countries. Attention is given to politics, international relations, trade, religion, literature, art, and architecture.

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

HIST 3131  Armenia in the Soviet Period  3 Credit Hours
HIST 3131 will study the history of the Soviet Republic of Armenia, when it was ruled by Communists and was part of the USSR in 1920-1991. It will chronicle the broad political, economic, social and cultural developments throughout 70 years of Soviet history and will then study in detail how these developments affected life in Armenia, one the fifteen union republics of the USSR, and relations between Soviet Armenia and the Armenian Diaspora outside the USSR, including the Armenian American community. The course will help students to better understand the Soviet experience by focusing on developments not only in the political center in Moscow, but in the southernmost and territorially the smallest of all the Soviet republics. It will also help students to better comprehend the historical background to some contemporary developments in Transcaucasia (the South Caucasus), Turkey, Iran and the Arab states of Western Asia.

HIST 3132  Armenians in the Modern World  3 Credit Hours
The course is a general survey of Armenian history and culture from the early sixteenth century to the present, with emphasis on political, economic and cultural interrelationships with other countries and peoples in the Near and Middle East, Europe and the Americas. The course analyzes how the major political shifts in world history impacted Armenia and the Armenians. Therefore, each era of Armenian history covered in this course is discussed in terms of developments worldwide and especially in the surrounding countries. Studying Armenia and the Armenian people gives students an understanding of what happens to, in, and around small countries as they find themselves in a regularly changing international political environment. Attention is given to politics, international relations, economics, religion, literature, art, and architecture. Modern Armenian history and culture is discussed in relation to Ottoman, Iranian, Russian, West European, North America, and other civilizations.

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

HIST 314  England: Tudors and Stuarts  3 Credit Hours
A political, economic, and social survey of England from 1485 to the end of the 17th century. Focus is on the interrelation of society and politics as well as on the rise of England to major international status. (AY).

HIST 315  Modern Britain  3 Credit Hours
Course focuses on Great Britain from the time of the Industrial Revolution to the present. Major problems considered are industrialization, the British empire and its disintegration, the democratization of British political life, the creation of the welfare state, and Britain’s role in the contemporary world. (AY).

HIST 316  African American History  3 Credit Hours
This course traces the experience of African Americans from their first landing in Virginia in 1619 through slavery and the Civil War. Emphasis will be placed on the origins of racism, the development of the slave system in the United States and the historical developments that led to the Civil War. (YR).

HIST 318  Early American Republic  3 Credit Hours
This course examines the history of the United States from the ratification of the Federal Constitution through the Presidency of Andrew Jackson. Particular attention is given to the process of political party formation, the impact of the “market revolution” upon life, the origins and ramifications of the Second Great Awakening, the antebellum reform movements, and slavery. (YR).
HIST 319  Civil War & Reconstruction  3 Credit Hours
This course examines America's pivotal middle period, a period of rising sectional tensions, bloody civil war, and protracted debate about the promise and limits of equality in the United States. Among the topics covered are the meaning of freedom in antebellum America, territorial expansion and the development of slavery as a political issue, the collapse of the national party system and the secession crisis, the meaning of the American Civil War, and the postwar settlement of reconstruction. (YR).

HIST 321  Late Imperial China  3 Credit Hours
Explores key issues in Chinese society and culture from around 900 CE to around 1800 CE, considering demography, family life and lineage organization, gender relations, farming and handicraft industries, intellectual trends, ethnic relations, popular culture, education, social stratification, and social control under imperial bureaucracy. (AY).

HIST 3211  Untold Caribbean: Field Course  3 Credit Hours
Full Course Title: Dark History and Untold Stories: Field Class in Caribbean Historical Archaeology. Field Class: involves international travel and required costs in addition to tuition. This class explores the story behind Caribbean "paradise." We use the analytical methods of historical archaeology to "read" sites of enslavement and resistance, as well as modern museum interpretations of Caribbean heritage, and engage in the production of new archaeological knowledge through excavation. We will ask how negative or "dark" history should be remembered, what life was like on Caribbean plantations, and how histories of slavery are relevant now. Throughout, we will examine how archaeology can tell the untold stories of the many people-black, white, free, and enslaved-who never made it into the history books. We will also contribute new voices with a "mini-field session" of archaeological excavation: students can gain a glimpse into scientific archaeology, and get to try out fieldwork to see if they would gain from a full field school. (S,OC)

HIST 322  Traditional China  3 Credit Hours
Examines Chinese history from ancient times to around 900 CE, stressing key developments in society, culture, and government that produced enduring cultural traditions, bureaucratic government, and distinctive patterns cultural exchange in Eastern Eurasia. (AY).

HIST 323  History of Modern China  3 Credit Hours
Studies China's historical evolution from around 1800 to recent events in the People's Republic; assesses China's distinctive path to modernity from traditional ideals and patterns of order, including demographic transformations, Western impact, rebellions and wars, nationalism and revolutions, and recent economic growth and social change. (YR).

HIST 325  Traditional Japan  3 Credit Hours
Traditional Japan from ancient times to around 1800; emphasis is placed on the evolution of Japanese institutions under the cultural influences of China. (AY).

HIST 326  Modern Japan  3 Credit Hours
Japan from around 1850 to present. The course considers the impact of foreign contacts on the Tokugawa system, the emergence of Japan as a modern state, Westernization and nationalism, the rise of militarism, the Pacific War, economic growth and social changes after the war, and changes in the U.S.-Japan relations. (OC).

HIST 329  Medieval Society  3 Credit Hours
An analysis of social institutions and ideas from the High Middle Ages through the discussion of original sources. (AY).

HIST 330  The Renaissance  3 Credit Hours
This interdisciplinary study of Renaissance culture focuses on its preeminent center, Italy, in the 15th and 16th centuries. The course investigates major aspects of art, music, literature, and philosophy and their relationships to social, economic, and political structures.

HIST 331  The Reformation Era: 1500-1648  2 to 3 Credit Hours
A study of the nature, course, and impact of the Protestant Reformation in Europe, Humanism, the Counter-Reformation, and the cultural and social implications of Protestantism also receive attention. (AY).

HIST 332  Europe in Age of Rev:1750-1815  3 Credit Hours
History of Europe during a period when established patterns of thought, social structure, and institutions were violently challenged. (AY).

Prerequisite(s): HIST 365
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

HIST 334  Europe in Age of Imp:1815-1914  3 Credit Hours
Europe in the age of nationalism, industrialism, imperialism, and democracy; background and origins of World War I. (YR).

HIST 335  20th-Century Europe, 1890-1945  3 Credit Hours
Europe before, during, and after World War I; the rise of communism and fascism; World War II. (AY).

HIST 336  The Contmp World, 1945-Present  3 Credit Hours
The post-war world, U.S.-Soviet rivalry, European/Japanese renaissance, the Chinese Revolution; decolonization and the emergence of the Third World. (OC).

HIST 3368  Germany Since 1945  3 Credit Hours
This course covers the history of Germany since World War II. It examines 1) the postwar period and the legacy of Allied occupation; 2) the process by which Germany was divided and the period of its division, tracing the histories and divergent characters of East and West Germany; 3) the different ways in which both the Cold War context and the legacy of the Third Reich shaped the German experience of twentieth-century revolutions of society, culture, and sexuality; 4) Germany's re-unification after 1989; and, finally, 5) the subsequent challenges in identifying a newly united but increasingly multicultural Germany's place in a unified Europe, focusing on issues of immigration, national identity, and citizenship.

HIST 337  Islamic Movemnts Mid East Hist  3 Credit Hours
Will compare several Islamic movements in Middle Eastern history, starting with the rise of Islam in Mecca and Medina. Later impulses toward Islamic revival all looked back to the first movement, and hoped to capture both its spirit and its success. With this as background, the course will move to address two questions: How did later Islamic movements understand the history of the rise of Islam? How have more recent Islamic movements had to adapt their methods and their ideology to different historical circumstances? (AY).

HIST 338  Women&Islam Mid East to 1900  3 Credit Hours
This course covers the historical development of Islam's normative stance towards women and gender roles in the Middle East from the rise of Islam to the earliest stirrings of feminist activism.
We will also consider how trends in German politics and culture helped German colonialism, immigration, World War I, and the Weimar Republic. This course considers the history of Germany in the nineteenth and early twentieth centuries. Topics covered include the changing nature of the welfare state, and the state control of women’s bodies.

HIST 3380  The European City, 1750-2000  3 Credit Hours
As a novel form of social and spatial organization, the rise of the modern industrial city transformed the European landscape. This course tracks the growth and development of the city in modern Europe, focusing particularly on London, Paris and Berlin. The course considers the physical landscape of the industrial city and the infrastructural challenges of rapid urbanization, political revolution, the exercise of political power and social control in urban space, as well as intellectual and artistic responses to the urban environment. In the final two units of the course we consider 20th-century challenges to the model of urban modernity that has carried over from the nineteenth century, and which remains so powerful today.

HIST 3385  Sex, War, and Violence  3 Credit Hours
Full Title: Sex, War, and Violence: Gender and Sexuality in the 20th Century European History. This course centers the often overlooked role of gender and sexuality in the 20th century European mobilizations of state violence such as the Holocaust, Armenian Genocide, and conflicts in the former Yugoslavia. It emphasizes the clashes that occurred between gains in gender and sexual rights during the century and projects of state violence that were frequently aimed at dismantling these gains. Attention is paid to the intersection of race, class, religion and gender in the (re)construction of new gender and sexual hierarchies in conflict and post-conflict contexts in the region. (OC)

HIST 339  Ottoman Empire in 19th Century  3 Credit Hours
The course is general survey of the history of the Ottoman Empire from the treaty of Kucuk Kaynarca in 1774 until the abolition of the caliphate in 1924. The course will examine such topics as modernization; imperialism; the rise of ethnic nationalism among the empire’s Christian and Muslim subjects; decocracy; ideologies like Ottomanism, pan-Islamism, Islamic modernism, and pan-Turkism; and changing ideas about gender.

HIST 3390  20th c European Women’s Hist  3 Credit Hours
This course focuses on selected events on the 20th century that illustrate the defining experiences of women in both Western and Eastern Europe. These include women’s war experiences, women and 20th century ideologies (e.g., communism, nationalism, and fascism), women and the welfare state, and the state control of women’s bodies.

HIST 340  Freud’s Vienna: 1866-1920  3 Credit Hours
An analysis of the place of Vienna in the cultural history of the modern west; particular attention is given to the Vienna of Franz Joseph (1848-1916) through the disciplines of history, art, architecture, music, literature, philosophy and psychoanalysis. Included are works by Freud, Schnitzler, Kraus, and Zweig. (AY)

HIST 341  Hist, Lit, & 20th Century Iran  3 Credit Hours
This course will examine the formation of modern Iranian culture through both historical documents and the creative works of mainly 20th Century Iranian poets and authors. The focus of the course will be the period between Iran’s Constitutional Revolution of 1905-1906 and the revolution of 1977-1979.

HIST 343  Germany Before Hitler  3 Credit Hours
This course considers the history of Germany in the nineteenth and early twentieth centuries. Topics covered include the changing nature of German national identity, the creation and fall of the German Empire, German colonialism, immigration, World War I, and the Weimar Republic. We will also consider how trends in German politics and culture helped prepare the ways for Hitler’s radical, racist version of German nationalism. (AR)

HIST 344  West Africa Since 1800  3 Credit Hours
A history of the West African peoples since 1800, which focuses on their unique cultural heritage. Themes include: West Africa before the advent of alien domination, the European Conquest, West Africa under the Colonial regimes, and the liquidation of colonial rule and the reassertion of West African independence. (AY)

HIST 345  Thomas Edison and his Era  3 Credit Hours
This course will introduce students to the life and work of Thomas Edison. Breaking with the stereotype of the lone inventor/genius, we will examine how Edison helped shape and was in turn shaped by the context of the Gilded Age America - when the United States emerged as an urban, industrial nation. Lectures and discussions will be supplemented by slides, films, and visits to the Edison-related sites at the Henry Ford. Throughout the course the following themes will be explored: invention and the labor process, the significance of manufacturing and marketing, and the origins of modern consumer culture. (OC)

HIST 3502  The Middle East 570 to 1800 CE  3 Credit Hours
This course covers the social and political history of the Middle East from the rise of Islam through several key transformations to 1800. We will examine the Middle East as the center of caliphal empires, as a place of political fragmentation, as a home to increasingly diverse ethnic and religious groups, as a region within an expanding Islamic world, and as the domain of the three so-called “gunpower empires”? (the Ottoman, Safavid, and Mughal dynasties). (YR)

Prerequisite(s): COMP 106 or CPAS with a score of 40

HIST 3511  Modern Middle East, 1918-1945  3 Credit Hours
This course surveys the history of major political events and social changes in the Middle East from 1918 to 1945. Among the topics covered are the struggle for Arab States for independence, the rise of Kemalism, and the rise of the Pahlavi Dynasty.

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

HIST 3512  Modern Middle East, 1945-1991  3 Credit Hours
This course surveys the history of major political events and social changes in the Middle East from 1945 to 1991. Among the topics covered are the "Arab Cold War," the Palestinian-Israeli conflict, the struggle for democracy, and the resurgence of "Islamist" politics.

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

HIST 3520  Lebanon in Modern Middle East  3 Credit Hours
HIST 3520 studies the modern history of Lebanon and the country’s involvement in broader Arab and Middle Eastern politics from the period when Lebanon’s modern boundaries were established in 1920 to 2005 when Syrian troops were forced to leave the country. The course focuses on the relations of the Lebanese state, its various ethno-confessional communities and political groupings with the Great Powers like France, the United Kingdom, the Soviet Union and the United States of America, as well as with the influential Arab states in the region, in particular Egypt, Syria, Saudi Arabia and Iraq. Particular attention is paid to the impact of the Arab-Israeli conflict and the presence of Palestinian refugees on internal Lebanese politics. The course also analyzes the diverse, sometimes contrasting, visions among Lebanon’s various local elites towards the country’s place in the region and the world and how these visions underwent change in light of evolving internal social and external political developments. (YR)
HIST 354  The United States and Vietnam   3 Credit Hours
The Vietnam War was a major turning point in U.S. history. This course focuses on French rule in Indo-China; U.S. interests in the region; U.S. involvement after 1945; the military, economic, and social nature of that intervention; and the consequences of the war. (OC).

HIST 355  Eng Colonies in Amer,1607-1763   3 Credit Hours
European expansion into North America; colonial societies, ideas, and institutions; imperial policy and administration, and accompanying changes in Amerindian and African cultures, and New World ecologies. (YR).

HIST 356  American Revolution, 1763-1815   3 Credit Hours
The causes, character, and consequences of the American Revolution, and the shaping of a new nation through the War of 1812. (YR).

HIST 358  Emerg of Modern U.S.,1876-1916   3 Credit Hours
An intensive study of the history of the United States from the end of Reconstruction to America’s entry into World War I. Particular attention is paid to the social, economic, and intellectual aspects of the period and to the origins of 20th-century America. (OC).

HIST 359  Era of World Wars:1916-1946   3 Credit Hours
An intensive study of the history of the United States from 1916 to 1946. Topics include World War I and its aftermath, the Depression, the New Deal, World War II, and post-war settlements and problems. (OC).

HIST 360  The U.S. Since 1946   3 Credit Hours
This course focuses on the era bracketed by the Truman through the present administrations. Particular attention is given to the New Deal, the Truman policy of containment, the Cold War, relations with China, McCarthyism, the Korean war, the civil rights movements, the New Frontier, involvement in Vietnam, and the problems of contemporary America. (AY).

HIST 3601  Michigan History   3 Credit Hours
This course covers some of the major trends and developments in the history of the state of Michigan from its aboriginal past to the present day. The course will focus upon placing the state's history within a broader national and international context and will focus upon such topics as aboriginal settlement and culture, colonization, American settlement and statehood, industrialization, immigration and political development. (YR)

HIST 3602  Comparat. American Identities   3 Credit Hours
This course will confront and complicate the following key questions: what does it mean to be an American? What is American culture? Participants in this course will respond to the questions central to the American Studies field by reading and discussing historical, sociological, literary, artistic, material culture, political, economic and other sources. Students will use this interdisciplinary study to examine the multiple identities of Americans - as determined by factors such as gender, race, class, ethnicity and religion. While emphasizing the diversity of American culture, participants will consider some core values and ideas unifying America both in historical and contemporary society. Students will be invited to seek out and share fresh narratives of the American experience. (OC).

Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280
Restriction(s):
Can enroll if Level is Undergraduate

HIST 361  United States Economic History   3 Credit Hours
A survey of the processes of development of the United States economy, their social implications, and the sources of today’s economic problems. (F).

Prerequisite(s): ECON 201 and ECON 202

HIST 362  Eur and Intern'l Econ History   3 Credit Hours
A survey of the processes of industrialization in the major non-American industrial economies, with a focus on their relevance and implications. (AY).

Prerequisite(s): ECON 201 and ECON 202

HIST 363  Rel in Am Hist:1607-1865   3 Credit Hours
A survey of the religious movements and trends in America from the 17th century to the Civil War, with emphasis on Puritanism, 18th-century revivalism, and 19th-century denominationalism and social reform. (AY).

HIST 3632  The US in the Middle East   3 Credit Hours
This course will examine the involvement of the US in the Middle East from the late 18th Century to modern times. The relationship between domestic politics and foreign policy (both in the US and in the Middle East) will be examined as US involvement in the Middle East grows from irregular missionary and commercial activity in the 19th century, to the establishment full diplomatic relations, to the complexities related to the globalization of the oil industry, Cold War interventions and, ultimately, the establishment of US hegemony in the region. Students will examine a number of “case studies” in US-Middle East relations as a platform for their own research into other episodes of American involvement in the Middle East. (YR)

HIST 3634  History of Islam in the US   3 Credit Hours
This course traces the long history of Islam and of Muslims in the United States (1730s-present), paying careful attention to the interaction among Muslims across the dividing lines of race, gender, immigrant generations, sect, political orientation, and class, and between Muslims and other Americans.

Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior or Graduate

HIST 3635  The 1960s in America   3 Credit Hours
This course aims to interweave the civil rights movement, the Vietnam War, the student movements, the women’s movement, and other developments of the period to place them in an historical context of a complicated era of change. The course compels students to critically evaluate social movements, political developments, cultural trends, and foreign policies by close examination of primary documents as well as critical evaluations of the various ways that scholars have interpreted the period. (AY).

HIST 364  Rel in Am Hist II:1865-Present   3 Credit Hours
A survey of American religion from the Civil War to the present, with emphasis on ethnicity and religion and post-World War II revivals of religion. (AY).

HIST 365  Honors Seminar   3 Credit Hours
To teach habits of informed criticism based on critical analysis of primary and secondary texts. This course will give Honors students the opportunity to learn reflective, critical listening and inquiry skills, which are essential to informed discussion of the Honors core course material. The content of specific courses will vary from semester to semester according to individual instructors. (YR).

Restriction(s):
Cannot enroll if Class is Freshman
HIST 3651  Women Leadership/Social Change  3 Credit Hours
The purpose of this seminar is to examine women's leadership in movements for social change. We will approach this topic through the study of historical examples, drawn primarily from the twentieth-century United States, and including movements for economic justice, race relations, sexual identity, peace, gender equality, public health, and social welfare. (W).
Prerequisite(s): WGST 275 HIST 112 or ANTH 275 or PSYC 275 or HUM 275 or SOC 275 or WST 275 or ANTH 303 or HUM 303 or PSYC 303 or SOC 303 or WGST 303 or WST 303
Restriction(s):
Cannot enroll if Class is Freshman

HIST 3665  Automobile in American Life  3 Credit Hours
The course will explore a wide array of distinct, though interconnected, subjects such as: the manufacturing, engineering and design of the automobile and its relation to industrial and technological developments and consumer trends; the automobile's role in America's industrial growth and the impact that industrialization had upon American society; the automobile's role in urbanization and urban sprawl; the mass marketing of the automobile and its connection to broader social constructions of class, race, and gender; the environmental impact of the automobile; and the automobile's use and meaning as a cultural symbol and its relation to the American identity. Through the use of diverse mediums such as personal recollections, popular music, film, photographs, advertisements, automobile ephemera, literature, poetry and more traditional written sources the course will examine America's ongoing fascination with the automobile. (OC)

HIST 3666  Henry Ford and His Place  3 Credit Hours
Using the biography of Henry Ford as a touchstone, the course will examine the trajectories of historical change and regional development between 1870 and 1950. Of fundamental concern will be southeastern Michigan's transformation from a 19th century outpost on the Great Lakes to the nation's "engine of change" in the 20th century. Henry Ford was the major player in that revolutionary transformation. This course examines his role in history and mythology as well as the causes and implications of that transformation. (OC)

HIST 3671  Intro to Arab American Studies  3 Credit Hours
This course explores the local, national, and global conditions through which Arab American identity and its alternatives take shape. It introduces students to humanities and social science approaches to the field of Arab American Studies.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

HIST 3676  Arab Americans Since 1890  3 Credit Hours
This is a survey of immigration from the Arab Middle East from 1890 to the present. Readings from available scholarship, discussions, and reports facilitate exploring the Arabic-speaking immigrants' early and recent experiences as art of U.S. society, including settlement, work, worship, military service, leisure, intellectual life, and primary and formal affiliations across the U.S.

HIST 368  Black Exp in U.S.:1865-Present  3 Credit Hours
The history of blacks in America is traced from the Reconstruction era and the rise of Jim Crow segregation to the Civil Rights movement of the 1960's and the current period. Special attention is paid to the migration of blacks to the north and the social-economic situation which they encountered there. Specific topics to be addressed include formation of the NAACP. (YR).

HIST 369  Civil Rights Movement in Amer  3 Credit Hours
A survey of race relations and civil rights activity from the late 19th century to the present. The principal focus, however, is on the period since World War II, especially on the mass-based Southern civil rights movement (1955-1965) and the various policy debates and initiatives of the past thirty years, most notably affirmative action and busing. We also examine critiques of non-violence and integrationism. (AY)

HIST 3695  American City  3 Credit Hours
This course examines the development of urban America from the European-style port cities of the colonial period through the edge cities of today. The bulk of the course will focus on the late 19th and 20th century urban environment with an eye towards understanding the diverse residents, cultures, economies, and geographies that have shaped American cities. We will cover everything from developments in transportation, architecture, business, and technology to immigration, politics, and urban culture. Broad concerns and constituencies have shaped the urban public sphere, the physical development of cities and the experience of living as an urbanite and, consequently, they will receive much of our attention. American patterns of development will then be placed in context with those of other nations and cultures. (AY)

HIST 370  Women in Am-Hist Perspective  3 Credit Hours
A survey of women's role in American society from colonial times to the present, emphasizing both change and continuity in women's experience. (YR).

HIST 371  American Ideas, 1607-1865  3 Credit Hours
Ideas about God and humanity, nature and society, which constituted the spirit of the age from the 17th century to the Civil War. (OC).

HIST 3730  Bible in History  3 Credit Hours
In this course we will try to examine the historical circumstances and contexts surrounding the writing of The Hebrew Bible. Roughly speaking, we will begin by exploring three aspects of the subject: Historical context of the writing of the Bible-i.e. during the organizing and communicating of each segment. History of the canonization: the ideas and rationale behind including some books but not others. History in the Bible. In more specific terms, this will entail examining who wrote the Bible, when and why. The narrative incorporates the movement from an oral tradition to a written one and will demand some focus on certain pivotal moments, e.g., Ezra's reading (cf. Ezra-Nehemiah), or the historical events in Kings and Chronicles, or the defeat of the northern kingdom of Israel in 722 B.C.E. (BC) and of the southern kingdom of Judah in 589 B.C.E.
HIST 3735  Inside-Out Reading Prison Narr  3 Credit Hours
Full Title: Inside-Out Prison Exchange: Reading Camp and Prison Narratives The course invites students to reflect on various prison narratives from select European countries. We will investigate how men and women of different races and ethnicities experienced oppression and how they used their bodies and developed skills to remain human in dehumanizing conditions. This provides students with an opportunity to reflect on the circumstances that led to their imprisonment, but also with a way to examine how they narrated their life stories. While doing the course will examine the concept of agency as something that frames life stories. Finally, it will allow students to reflect on various ways individuals in various circumstances struggle to remake their lives inside as well as outside of prison. Various categories, such as gender, art, resistance, body and space will help us navigate through rich primary source material, which includes memoirs, drawings, paintings, and poems created within a constrained space of prisons and camps. The course is part of the Inside-Out Prison Exchange Program, which combines a theoretical knowledge with practical understanding and experience by holding class inside Macomb Correctional Facility throughout the semester. The class has roughly equal numbers of UMD students and incarcerated students, and utilizes a variety of active learning techniques, leading to the production of one or more class projects by the end of the course.

HIST 374  History of Industrial Technology  3 Credit Hours
Focusing on western Europe and the United States since the Industrial Revolution, this course will examine the history of manufacturing technologies and will include the following topics: mechanization and the rise of the factory; mass production; the process of innovation; design and diffusion of new technologies; technologies; technology and the changing nature of work; automation and lean production systems. Through readings, class discussions, and examination of artifacts (actual tools and machines), students will consider the central role played by technology in the making of modern society. (OC).

HIST 375  Heterodox Economics  3 Credit Hours
This course introduces students to alternative perspectives on economic theory and method. These alternatives include: Marxian and radical political economics, institutional and evolutionary economics, behavioral economics, post-Keynesian economics and feminist economics. (OC).
Prerequisite(s): ECON 201 and ECON 202

HIST 3750  Modern Warfare  3 Credit Hours
A chronological overview of the major military conflicts occurring between 1775 and 2001, with an emphasis on the technological, political, international and social changes that shaped the course of modern warfare. Designed to explore the connections between “total war,” the rise of mass society and the relationship between modern warfare, revolution and decolonization.

HIST 378  History of Consciousness  3 Credit Hours
Traces changes in the way people have viewed themselves, the world and changes in the forms or orders of thinking; in other words, changes in consciousness and concepts of the unconscious. The mode is intellectual history and involves studies of the ideas of philosophers, psychologists and literary artists. The class will examine ancient and “primitive” consciousness as well as forms of society. (AY).

HIST 379  Language, Myth & Dreams  3 Credit Hours
An examination of the relationships between language, myth, dreams, and thinking processes; considers the work of such scholars as Ernst Cassirer, Noam Chomsky, and Freud; studies the nature of the mind from philosophical, psychological and literary perspectives. (AY).

HIST 381  Intell Hist of Modern Europe  3 Credit Hours
An examination of the intellectual currents from the scientific revolution, the Enlightenment, the currents of 19th and 20th century thought including romanticism, conservatism, liberalism, socialism, Darwinism. Includes analysis of the reactions to World War I, the Russian Revolution, and World War II. Readings include works by Descartes, Rousseau, Marx, Darwin, Zola, Freud, Kafka and Koestler. (AY).

HIST 383  Labor in America  3 Credit Hours
A survey of urban workers from colonial times to the present. Among the topics covered are changing standards of living, the experiences of industrial work, labor organization, and working-class politics. (YR).

HIST 384  Immigration in America  3 Credit Hours
A survey of the “immigrant experience” in the United States, from the early 19th century to the present. Particular attention is given to enduring problems of economic adjustment and cultural assimilation, and to the impact of immigration on the host society. (AY).

HIST 385  Modern France  3 Credit Hours
A history of France from the French Revolution to the present. The major emphasis is on the political evolution of France with some attention to social and economic development. (AY).

HIST 386  Compar History of Technology  3 Credit Hours
This course will examine the history of technology from a comparative perspective: studying the development and impact of technology in different societies during various historical eras. Topics include: irrigation control and the rise of ancient empires; technology’s role in the industrial revolution; technological innovation and the pace of social change. Current issues and various analytical perspectives in the history of technology will also be examined. (OC).

HIST 387  Aspects of the Holocaust  3 Credit Hours
A survey of how and why millions of Jews, Gypsies, Slavs, and political and “racial” enemies of the Reich were so quickly and determinedly slaughtered. (YR).

HIST 389  Nazi Germany  3 Credit Hours
History of National Socialism, its goals and structure. Also addressed are the nature of the dictatorship; the role of the historian in interpreting the era and the use and evaluation of historical documents. (YR).

HIST 390  Topics in History  3 Credit Hours
Schedule of Classes changes according to content. Course may be repeated for credit when specific topics differ. (OC).

HIST 390B  Topics in History  3 Credit Hours
This course examines the social history of the modern American city, from 1870 to the present. The course traces sources of conflict in American cities, including natural disaster, labor strife, foreign immigration, migration patterns, economic difficulties, crime, gender, sexuality, and race.

HIST 390C  Topics in History  3 Credit Hours
TOPIC TITLE: Thomas Edison and His Era. This course will introduce students to the life and work of Thomas Edison. Breaking with the stereotype of the lone inventor/genius, we will examine how Edison helped shape and was in turn shaped by the context of the Gilded Age America - when the United States emerged as an urban, industrial nation. Through lectures, discussions, and visual presentations, we will use various Edison inventions to cover a variety of topics.
HIST 390D  Topics in History  3 Credit Hours
TOPIC TITLE: State, Culture and Society in Modern Iran. For Iranian specialist, these are exciting times. There is a new wave of interdisciplinary research on Iran coinciding with a surge of political and intellectual debate about the direction of contemporary Iranian society. Honors students will capitalize on this in the tutorial by examining Iranian history and society from a number of interrelated standpoints: historical, legal, literary, anthropological and cinematic. We will cover the following topics: the rise of the modern state in Iran (from sacral kingship to the Islamic Republic), Twelver Shi'a Islam in Iran (including the rise of modern clergy and heretical off-shoots), Islamic revivalism in Iran (Al-Afghani, Khomeini and the Islamic-Marxist, Ali Shari'ati and reformist Abd al-Karim Sorush), modern Persian prose (Jamalzadeh, Daneshvar, Chubak and Al-e Ahmad), America and Iran and economy and translation in Iran (oil industry, urbanization and mass media culture). These topics will be explored through a combination of research monographs, translated literary or historical material (e.g., both of Iran's constitutions) and films. Students will read, discuss and write on the following text: The Mantle of the Prophet by Roy Mottahedeh and The Daughters of Quchan by Afsoon Najmabadi (history), The Children of Deh Koh by Erika Friedl and Law of Desire by Shahla Haeri (anthropology), Persian is Sugar by Mohammad Ali Jamalzadeh, Savushun by Simin Daneshvar, The Patient Stone by Sadeq Chuba (fiction), and Weststruckness by Jalal Al-e Ahmad (social criticism).

HIST 390E  Topics in History  3 Credit Hours
TOPIC TITLE: Reconstructing Historical Memory: The Second World War and the America Cinema.
Prerequisite(s): HIST 365 and HIST 261 and HIST 262 and HIST 263
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

HIST 390F  Topics in History  3 Credit Hours
Topic: The Native American Past. This course introduces students to the long and rich history of America's First Peoples from earliest times to the present. Although the topics covered in class will be wide-ranging, the course emphasizes certain unifying themes: the diversity of indigenous peoples and cultures; the agency of First Peoples; the political, economic, and cultural dimensions of European/Indian accommodation and resistance; the evolution of government Indian policies and Native American responses to them; and contemporary issues confronting native peoples. The course examines the Native American Past from native people's perspectives, by including the unfamiliar voices of those peoples in more familiar accounts of America's past, and by introducing students to ways of studying neglected parts of the past and to some of the varied ways that historians (both Native and non-Native) have interpreted the Native American past.

HIST 391  Topics in History  3 Credit Hours
Examination of problems and issues in selected areas of history. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

HIST 391A  Topics in History  3 Credit Hours
COURSE TITLE: Women and Islam in Middle Eastern History. This course will introduce students to Islam's normative stance towards women, to complications in that normative stance, to theories about gender and history and, finally, to a consideration of the changing and varied attitudes about women and gender in the modern Middle East.

HIST 391B  Topics in History  3 Credit Hours
This course will trace the evolution of Polish statehood, culture, and society from their beginnings up to the Post-Communist present. It will stress recurring themes in Polish History, and the relationship of Poland to Western European culture, while also considering her ties to other surrounding civilizations.

HIST 392A  Topics in History  3 Credit Hours
COURSE TOPIC: Islamic Movements in Middle Eastern History. This course will compare several Islamic movements in Middle Eastern history, starting with the rise of Islam in Mecca and Medina. Later impulses toward Islamic revival all looked back to the first movement, and hoped to capture both its spirit and its success. With this as background, the course will move to address two questions: How did later Islamic movements understand the history of the rise of Islam? How have later Islamic movements had to adapt their methods and their ideology to different historical circumstances?

HIST 398  Independent Studies in History  1 to 3 Credit Hours
Readings or analytical assignments in history in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor. (OC).

HIST 399  Independent Studies in History  1 to 3 Credit Hours
Readings or analytical assignments in history in accordance with the needs and interests of those enrolled as agreed upon by the student and instructor. (F,W).

HIST 4312  European Encounters, 1400-1800  3 Credit Hours
During the early modern period, merchants, explorers and travelers set out from the European West in unprecedented voyages of discovery, intensifying interaction between cultures and initiating contact with previously unknown civilizations. In this advances seminar we examine original documents (in English) as well as current scholarship about encounters between groups of Europeans and inhabitants of other parts of the world from the perspective of both sides. Comparing these contradictory (and often incompatible) accounts of the same events, provides a more comprehensive understanding of the process of European expansion, and of the strengths (and limitations) of historical sources. Additional assignments will distinguish the undergraduate and graduate versions of this course.
Prerequisite(s): HIST 300
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Arts, Sciences, and Letters

HIST 4401  Seminar: African Diaspora  3 Credit Hours
Research seminar on the history of the African Diaspora in the Atlantic World. This course covers examples of classic texts in the field, as well as significant new scholarship, with an emphasis on critical reading, analysis, and the development of an independent research project. Students gain a deeper understanding of the significance of the African Diaspora in the New World, derived from lectures and discussions providing an overview of this subject, as well as the micro views gleaned from sharing classroom presentation about students? individual research topics. The graduate version of this course includes weightier readings and assignments, with a research paper for potential publication.
Prerequisite(s): HIST 300 or AAAS 275 or HIST 345 or AAAS 345
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Graduate
HIST 4505  Feminism & Mod. Mid. East  3 Credit Hours
This course provides an analysis of the history, historiography, and sources for the study of feminism in the Middle East since 1800.
Prerequisite(s): COMP 106 or HIST 101 or HIST 300
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

HIST 4515  Culture & Hist. in Mod. Iran  3 Credit Hours
Alongside the most influential academic studies of Iran, this course uses cultural sources (such as literature and film) as windows on the pivotal social and political movements in Iranian history since 1800. This study of cultural change factors in cultural debates inside Iran, the growth of the Iranian Diaspora, and the increased presence of Iranian culture in electronic media. Additional assignments distinguish the graduate version of this course from the undergraduate version.
Prerequisite(s): COMP 106 and (HIST 101 or HIST 113 or HIST 3511 or HIST 3512) and HIST 300
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

HIST 4600  U.S. Cultural History  3 Credit Hours
The seminar concentrates on scholarly interpretations of U.S. history through a cultural lens. It features close analysis of classic texts in American cultural history as well as significant new works of scholarship, with an emphasis on critical reading, analysis, and historiography of the field. Students gain a deeper understanding of the cultural aspect of U.S. history and a familiarity with this mode of analysis, its guiding theories, newest trajectories and scholarly debates, and impact on the field of history as a whole. Additional assignments will distinguish the undergraduate and graduate versions of this course. Cannot receive credit for both HIST 490A and HIST 4600.
Prerequisite(s): HIST 300
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

HIST 465  The Family in History  3 Credit Hours
An analysis of the emergence of the modern family from the 16th century to the present with focus on the history of childrearing, family size and structure, intra-familial and inter-generational relationships and population patterns. (OC).

HIST 4650  Sem in US Women's History  3 Credit Hours
Seminar on the historiography and key primary sources related to U.S. Women's History. The course covers examples of classic texts in the field as well as significant new works of scholarship, with an emphasis on critical reading, analysis, and historiography of the field. Students gain a deeper understanding of the field, its guiding concepts, foundational texts, newest trajectories and scholarly debates, and impact on the field of history as a whole. The graduate version of this course includes weighter readings and assignments.
Prerequisite(s): HIST 300
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

HIST 4677  Arab American Identities  3 Credit Hours
Extensive discussions and critical analysis of the main markers of Arab American identity formation from late nineteenth century to present. This seminar provides in-depth assessments of immigrant narratives from various sources and disciplinary approaches on specific racial, ethnic, and gender experiences within the larger U.S. context. Additional assignments distinguish the graduate version of this course from the undergraduate version.
Prerequisite(s): HIST 300
Restriction(s):
Can enroll if Level is Undergraduate
**History of Music (MHIS)**

**MHIS 100  Intro to Music  3 Credit Hours**
A study of Western classical music and its historical development up to the present, through examination of representative musical works.

**MHIS 120  History of Jazz  3 Credit Hours**
The course provides an introduction to jazz styles within their cultural context. Major figures (Louis Armstrong, Duke Ellington, Charlie Parker, and others) and styles (New Orleans, Big Band, Bebop, Cool Jazz, etc.) will be studied through recordings. Ideas about jazz as the expression of African American culture will be studied. (OC).

**MHIS 130  Intro to World Music  3 Credit Hours**
This course is designed as an introductory survey of non-western music traditions within the field called ethnomusicology. The music is studied in terms of sounds, musical instruments, forms and their functions in the society and culture that supports them. Music studied includes that of the Middle East, India, Australia, China, Korea and Japan. (YR).

**MHIS 311  Music Before Bach  3 Credit Hours**
A survey of the early history of music with emphasis on sacred and secular monophonic forms, the rise of part-singing and the opposition to it in the 17th century. (AY).

**MHIS 312  Music from Bach to Brahms  3 Credit Hours**
A survey of music in the 18th and 19th centuries with emphasis on the styles and forms of the major composers. (AY).

**MHIS 313  Music Since 1900  3 Credit Hours**
A survey of developments in musical styles (especially concert and popular music) and uses of music (film, theater, and recording technologies) in the 20th and 21st centuries.

**MHIS 314  History of Popular Mus in the USA  3 Credit Hours**
An introduction to popular music in the United States. This course will include music of the westward movement, ragtime and blues, the roots and growth of jazz, folk music, country music, music of Broadway and Tin Pan Alley, the roots of and development of rock music, as well as the historical, political and sociological background of the United States as pertinent to music history. (YR).

**MHIS 331  Music of America  3 Credit Hours**
An historical and cultural study of American music in both the written and unwritten traditions. Content of the course includes not only the various forms of classical music produced in the new world but also primitive, popular, and vernacular genres. (OC).

**MHIS 332  Intro to Gospel Music  3 Credit Hours**
This course explores the history and aesthetics of Black sacred music within cultural context. Major figures (Thomas A. Dorsey, Mahalia Jackson, The Winans Family, Kirk Franklin), periods (slavery, Great Migration, Civil Rights movement), and styles (folk and arranged Negro spirituals, congregational songs, and gospel songs - traditional to contemporary) will be studied through recordings, videos, film, and at least one field experience. Underlying the course is the theory (Mellonee Burnim and Pearl Williams-Jones) that gospel music is an expression of African American culture that fuses both African and European elements into a unique whole. (OC).

**MHIS 333  Multimedia and Music  3 Credit Hours**
In this course, students will explore case studies of music created, performed, and distributed in combination with other media from the 1960s to the present. Multimedia is understood as any context in which several media are integrated, but particular focus will be paid to technological and creative innovations (such as video games, computers, and phones). The use of music will be considered in such media as film and television, multimedia performance and installation art, and international developments in multimedia production and distribution.

**MHIS 334  Intro to World Music  3 Credit Hours**
In this course, students will explore case studies of music created, performed, and distributed in combination with other media from the 1960s to the present. Multimedia is understood as any context in which several media are integrated, but particular focus will be paid to technological and creative innovations (such as video games, computers, and phones). The use of music will be considered in such media as film and television, multimedia performance and installation art, and international developments in multimedia production and distribution.
MHIS 336  Film and Music  3 Credit Hours
In this course, students will be introduced to the varieties of music used in film from c. 1900 to the present. Topics covered include a basic introduction to the musical features of Western European dramatic music; the role of music in the early decades of the 20th century; the growth of film and musical sound in the "classic era" of Hollywood film; the use of music in specific genres such as film noir, science-fiction, epic, and musicals; and the use of popular song in film. Prerequisite: previous completion of MHIS 100, 120, 130, or by permission of the instructor.  
Prerequisite(s): MHIS 100 or MHIS 120 or MHIS 130

MHIS 337  Women Musicians/West Mus Hist  3 Credit Hours
Through a historical survey of female musicians from the Middle Ages to the present day, this course takes a critical look at theories of creativity and professionalism as they relate to female musical production. The course deals with women in European "art music" traditions and also in jazz and popular music. Social and cultural norms dictating appropriate female involvement with music are examined. The historical approach will serve to reveal ways in which terms such as professionalism and virtuosity have continually shifted and changed in reference to female musical performance. The course challenges students to re-think many of the commonly accepted gender-based descriptions of particular genres and elements of music through listening and musical analysis.  
Prerequisite(s): MHIS 100 or MHIS 120 or MHIS 130 or MTHY 100 or WGST 275 or PSYC 275 or HUM 275 or SOC 275 or ANTH 275 or WGST 303 or ANTH 303 or SOC 303 or PSYC 303 or HUM 303 or WST 275

MHIS 341  Symphony and Symphonic Poem  3 Credit Hours
The symphony and symphonic poem developed from their origins to their more complex later forms. Comparative analysis of similar forms in different periods. (OC).

Prerequisite(s): MHIS 100 or MHIS 120 or MHIS 130 or MHIS 311 or MHIS 312 or MHIS 313 or MHIS 340 or MHIS 342 or MHIS 390 or MTHY 100 or MTHY 102 or MTHY 301 or MTHY 302 or MTHY 390

MHIS 343  Opera  3 Credit Hours
A study of selected examples of music theater from the late 16th century to the present, including a comparison of the qualities of sung versus spoken drama, with emphasis on the achievements of such composers as Monteverdi, Mozart, Wagner, and Verdi. (AY).

Prerequisite(s): MHIS 100 or MHIS 120 or MHIS 130 or MHIS 311 or MHIS 312 or MHIS 313 or MHIS 340 or MHIS 342 or MHIS 390 or MTHY 100 or MTHY 102 or MTHY 301 or MTHY 302 or MTHY 390

MHIS 388  W. African Music: Trad. & Glob.  3 Credit Hours
West African popular music contains a unique mixture of African, Cuban, European and American influences. With the advent of radio and recording, music that was once locally based is now part of a national and international popular music industry. This course offers an overview of modern West African music, both traditional and popular. The course begins with an introduction to traditional West African instruments and musical genres. Next, there is an exploration of the fusion of traditional African styles with European, Cuban and American styles during and after the colonial era. The course culminates with an examination of the contributions of West African musicians to the World Music scene, focusing on issues of representation and Fair Trade.  
Prerequisite(s): MHIS 100 or MHIS 120 or MHIS 130 or MTHY 100 or AAAS 106 or AAAS 275 or HUM 100 or HUM 270

MHIS 390  Topics in Music History  3 Credit Hours
Examination of problems and issues in selected areas of music history. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specified topics differ. (OC).

MHIS 399  Independent Study  1 to 3 Credit Hours
Advanced readings or analytical assignments in a particular area of music. Not more than three hours of independent study will be accepted toward the concentration. (F,W).  

An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Human Resource Management (HRM)**

HRM 305  Human Resource Policy/Admin  3 Credit Hours
To examine personnel policy making and administration relative to the achievement of the objectives of the firm through the eyes of general management. Topics include: recruitment and selection, wage and salary administration training, evaluation, discipline and industrial relation activities. Cases are analyzed.

Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

HRM 406  Staffing, Training & Develop  3 Credit Hours
The course examines how to design, administer, and evaluate employee staffing, selection, training, and development activities that support organizational strategies. The course is geared both toward those who are or will be (a) HR managers who will develop and administer staffing and training programs and (b) managers in other functional areas who want to improve their personal effectiveness in selecting and developing employees. Key topics to be covered include: staffing strategy and planning; job design and analysis; external and internal recruiting; employee testing and assessment methods; interviewing; measurement, validation, and decision-making issues in selection; instructional design and delivery; methods for developing employees and managers; career management; laws and regulations affecting staffing and training; evaluation methods for staffing and training activities; and issues in staffing and training for an international workforce. (YR).

Prerequisite(s): (HRM 405 or HRM 305) and OB 354

HRM 407  Compensation & Performance Mgt  3 Credit Hours
The course examines how to design, administer and evaluate compensation and performance appraisal programs that support organizational strategies. The course is geared both toward those who are or will be (a) HR managers who will develop and administer pay and appraisal programs and (b) managers in other functional areas who want to improve their personal effectiveness in administering pay performance appraisals. Key topics to be covered include: merit and incentive pay; methods for internally valuing jobs, external labor markets and job pricing, design and administration of pay structures, employee benefits, compensating executives and expatriates, purposes and measurement methods for performance appraisals, performance criteria, rater processes and biases, performance reviews, and team-based pay and performance. (YR).

Prerequisite(s): (HRM 405 or HRM 305) and OB 354
HRM 408  Employment Relations  3 Credit Hours
To provide interpretation, insight, and understanding of the impact of management and union institutions on employee relations. Topics include labor union structure, aims, and operations, management objectives and functions, collective bargaining agreements, wage bargaining, industrial conflict and dispute settlements, labor relations legislation, and public intervention in management-union activities. A major portion of the course is devoted to a bargaining simulation exercise.
Prerequisite(s): HRM 405 or HRM 305

HRM 485  Seminar: Human Resource Mgmt  1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members. Permission of College of Business.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

HRM 495  Research: Human Rsrch Mgmt  1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

*  An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Humanities (HUM)

HUM 100  Introduction to Humanities  3 Credit Hours
An introduction to the visual arts, music, and drama in western and world societies. Through study of individual works, the course teaches appreciation of the arts in their aesthetic and technical qualities, and understanding of the arts as expressions of diverse societies, varied historical conditions, and shared human experiences. (YR).

HUM 170  Studies in Humanities  3 Credit Hours
An interdisciplinary examination of selected key ideas in contemporary western thought. Emphasis will be placed upon how the issues and problems in question manifest themselves in popular and high culture. (YR).

HUM 171  Styles in 19th Century  3 Credit Hours
An introduction to the two principal styles of the 19th century, romanticism and realism, viewed within the general evolution of European civilization. After reading works of the classical tradition, the class will study masterpieces that illustrate the romantic and realist movements. (OC).

HUM 200  The Human Condition  3 Credit Hours
The human condition as seen in selected works of philosophy and literature. Typical issues: the meaning of life, the existence of God, moral responsibility for human actions, and the role of society in promoting or hindering human excellence. (YR).

HUM 201  Religions of the World  3 Credit Hours
A study of religion in essence, in manifestation, and in relationship with the other dimensions of culture; a treatment of man's religious interests and the various ways in which he has sought to pursue these interests. Surveys major world religions. (OC).

HUM 221  Great Books I: Ancient World  3 Credit Hours
Introduction to masterpieces of Western world literature from the ancient world. Readings include the Bible, Iliad, Odyssey, Greek drama, and Roman authors. (YR).

HUM 222  Gr Bks II: Mid Ages and Ren  3 Credit Hours
Introduction to masterpieces of Western world literature from the Middle Ages and Renaissance. Readings include Dante, Chaucer, Wolfram, Cervantes, Shakespeare, Moliere, and Racine. (YR).

HUM 223  Gr Bks III: Modern Era  3 Credit Hours
Introduction to masterpieces of Western world literature from the Modern Era. Readings include Swift, Voltaire, Rousseau, English romantic poets, fiction and drama of the 19th and 20th century. (YR).

HUM 240  Film and Society  3 Credit Hours
A survey of the major genres of film, chiefly in historical and political perspective, but also in light of important intellectual frameworks (e.g., feminism, psychoanalytical theory). The films selected, both Western and non-Western, will be examined both for their visual codes of meaning and for their wider role in developing a powerful social language in various cultural contexts. (OC).

HUM 248  Introduction to Screen Studies  3 Credit Hours
This course will introduce students to the development of world cinema by integrating the aesthetics of film with its technology, and its social and economic milieu. It will train the students in analyzing the formalist qualities of the medium, and in understanding the evolution of its various genres and styles. (YR).

HUM 261  Honors: West Cult I: Origins  3 Credit Hours
First in a series of four courses. An interdisciplinary course describing the nature of the Western classical and Biblical traditions. Will examine Western values, attitudes, history, art history, the roots of scientific thought, logic, and social institutions such as the family and the state. Included will be works of literature, history, philosophy, and art history. (YR).
Prerequisite(s): HIST 365

HUM 262  Honors: Western Culture II  3 Credit Hours
Second of four courses on Western Civilization required of all Honors students. Course covers the period of the Middle Ages, Renaissance, and Reformation. Focus is on ways in which the Biblical and Classical traditions are preserved, adapted, transformed, or discarded under the pressures of new social and political formations. Materials will be drawn from literature, philosophy, political theory, and art of the period. (YR).
Prerequisite(s): HIST 365
HUM 263 Honors: Western Cult III 3 Credit Hours
Third of four courses on Western Culture required of all Honors students. Course covers period from 17th to 19th centuries. Focus is on the emergence of scientific thought, Enlightenment political theory, Romantic individualism, and the great 19th-century intellectual revolutions of Darwinism, Marxism, and feminism. Material will be drawn from literature, philosophy, and political and scientific writings of the period. (YR).
Prerequisite(s): HIST 365

HUM 264 Honors: West Cult IV: Mod Era 3 Credit Hours
Fourth of four courses in Western Culture required of all Honors students. Course covers period from late 19th century to present. Focus is on selected major issues of Western civilization in the modern era: science and human values, bureaucratic and totalitarian societies, psychoanalytical thought, feminism, nihilism, existentialism. (AY).
Prerequisite(s): HIST 365

HUM 270 Intro to Africana Studies 3 Credit Hours
This gateway course in the AAAS Minor will engage the students in the intellectual issues, historical perspectives and cultural debates in African and African American Studies. Using a trans-disciplinary approach the AAAS faculty teaching this course as a team will draw from the disciplinary strengths of the Humanities, the Social Sciences and the Behavioral Sciences. Texts will include literature, film, music, art, theater, and other forms of popular and folk culture. The course will routinely invite speakers and performers to the class and engage the campus community in these events. (YR)

HUM 290 Topics in Humanities 1 to 3 Credit Hours
Examination of problems and issues in selected areas of the humanities. Title as listed in Schedule of Classes will change according to content. Course may be repeated when specific topics differ. (OC).

HUM 300 Intro to AAAS 3 Credit Hours
This gateway course in the African and African American Studies Program introduces students to the intellectual debates, historical perspectives and cultural issues central to the field of African and African American Studies. The course readings draw from the disciplinary strengths of the Humanities as well as the Social and Behavioral Sciences. Course materials include selections from literature, film, music, art, drama, folk and popular culture. The course content is supplemented by attendance at off-campus events and visits to institutions featuring significant aspects of African and African American history and culture.
Restriction(s):
Cannot enroll if Class is Freshman

HUM 303 Intro to Women's & Gender Stud 3 Credit Hours
This course provides an interdisciplinary overview of the key theories and topics in Women's and Gender Studies. Special attention is given to how gender intersects with class, race, nationality, religion and sexuality to structure women's and men's lives. Students are also introduced to methods of gender analysis and will begin to apply these methods to topics such as women and health, gender roles in the family, violence against women, and gendered images in the mass media.
Restriction(s):
Cannot enroll if Class is Freshman

HUM 304 Studies in Det.Hist. & Culture 3 Credit Hours
This interdisciplinary course explores the political, social, and cultural history of Detroit by examining ways various groups and classes have interacted with and been shaped by structures of power and influence. The course highlights trade and commerce, newcomers, and the influence of organizations and institutions within the contexts of labor, race, ethnic, and religious histories and current affairs, and examines how these fit into the evolution of Detroit from the 19th century to the present. Where pertinent the influence of national and international movements included.

HUM 305 The Arts & Culture of Detroit 3 Credit Hours
This interdisciplinary course explores the modern and contemporary cultural history of Detroit, examining the ways in which various population groups have been creative from the nineteenth century to the present. The course highlights the work of architects, designers, photographers, visual artists, poets, and musicians, and situates them in the broader cultural context of American art and history.

HUM 311 Art of China 3 Credit Hours
An introduction to the civilization of traditional China through the historical presentation of its art forms, literary achievements, and philosophical structures. The course will survey the Buddhist, Daoist, and Confucian content of Chinese art and culture from the Shang to the Qing dynasties.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105 or HUM 100 or HUM 150 or HUM 171 or HUM 200 or HUM 201 or HUM 221 or HUM 222 or HUM 223 or HUM 240 or HUM 261 or HUM 262 or HUM 263 or HUM 264 or HUM 275 or HUM 290

HUM 312 Art of Japan 3 Credit Hours
An introduction to Japanese culture through the historical presentation of its varied art forms. Drama, music and the fine arts are studied within the context of Buddhist and Shinto religious practices.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105 or HUM 100 or HUM 150 or HUM 171 or HUM 200 or HUM 201 or HUM 221 or HUM 222 or HUM 223 or HUM 240 or HUM 261 or HUM 262 or HUM 263 or HUM 264 or HUM 275 or HUM 290

HUM 313 Chinese Painting 3 Credit Hours
A historical survey of the painting of China from the earliest examples found in tombs through works influenced by the West from the modern period. Students will be introduced to Eastern philosophy and relevant literary genres which provide a context for the development of the Chinese painting tradition.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105

HUM 315 Early Chinese Art and Archaeol 3 Credit Hours
An examination of the art and architecture of early China (Neolithic through Eastern Han). Recent excavations that have significantly changed our view of the early period will be given emphasis. Students will analyze relevant literary and philosophical texts in translation to enhance understanding of the cultural context.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105

HUM 321 Popular Culture 3 Credit Hours
This course examines the art forms of contemporary popular culture, including rock 'n roll, movies, television, advertising design, and commercial architecture. Our critical inquiry emphasizes the development of the aesthetics and the myths of our modern mass media environment, as well as relationships between popular and "high" culture. (AY).
HUM 3335  Intro to Gospel Music  3 Credit Hours
This course explores the history and aesthetics of Black sacred music within cultural context. Major figures (Thomas A. Dorsey, Mahalia Jackson, The Winans Family, Kirk Franklin), periods (slavery, Great Migration, Civil Rights movement), and styles (folk and arranged Negro spirituals, congregational songs, and gospel songs - traditional to contemporary) will be studied through recording, videos, film and at least one field experience. Underlying the course is the theory (Mellonée Burnim and Pearl Williams-Jones) that gospel music is an expression of African American culture that fuses both African and European elements into a unique whole. (OC).

HUM 335  Women in Medieval Art  3 Credit Hours
Women have often been regarded as the second sex of the middle ages due to the misogynistic attitudes of that era. Recent scholarship, however, has unearthed a significantly more complex picture. Through a study of visual representations of women in medieval art, this course will examine women's roles in the creation and patronage of art and literature, economic and family issues, and women's participation in new and innovative forms of religious piety.

Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106 or WGST 275 or WGST 303 or HUM 275 or HUM 303 or ANTH 275 or ANTH 303 or PSYC 275 or PSYC 303 or SOC 275 or SOC 303 or WST 275

HUM 337  Women Musicians/West Mus Hist  3 Credit Hours
Through a historical survey of female musicians from the Middle Ages to the present day, this course takes a critical look at theories of creativity and professionalism as they relate to female musical production. The course deals with women in European "art music" traditions and also in jazz and poplar music. Social and cultural norms dictating appropriate female involvement with music are examined. The historical approach will serve to reveal ways in which terms such as professionalism and virtuosity have continually shifted and changed in reference to female musical performance. The course challenges students to re-think many of the commonly accepted gender-based descriptions of particular genres and elements of music through listening and musical analysis.

Prerequisite(s): MHS 100 or MHS 120 or MHS 130 or MTHY 100 or WGST 275 or PSYC 275 or HUM 275 or SOC 275 or ANTH 275 or WGST 303 or ANTH 303 or SOC 303 or PSYC 303 or HUM 303 or WST 275

Restriction(s):
Cannot enroll if Class is Freshman

HUM 343  Opera  3 Credit Hours
An introduction to the study of the musical genre of opera through consideration of major operas based upon literary and dramatic works. Covers examples of operas of all eras, from the time of Monteverdi to present. (OC).

Prerequisite(s): MHS 100 or MHS 120 or MHS 130 or MHS 311 or MHS 312 or MHS 313 or MHS 331 or MHS 340 or MHS 341 or MHS 342 or MHS 390 or MTHY 100 or MTHY 101 or MTHY 102 or MTHY 301 or MTHY 302 or MTHY 390

HUM 3435  Adaptations of Literary Texts  3 Credit Hours
This course explores the adaptation of literary texts in a variety of literary genres (poetry, drama, fiction) to other artistic mediums (film, graphic novels/comics, paintings, etc.). Moving beyond limited comparisons of "good" originals and "bad" adaptations, this course focuses on the dialogue among multiple versions of the same story across a range of historical periods, asking how and why adaptations modify their sources in a particular manner. This course addresses the difference between adaptation and appropriation as well as imitation, quotation, allusion, pastiche, and parody.

Prerequisite(s): (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239) and (COMP 106 or COMP 220 or COMP 270 or COMP 280)

Restriction(s):
Cannot enroll if Class is Freshman

HUM 346  Bible and Western Tradition  3 Credit Hours
An examination of Biblical literature in various English translations, with emphasis on genres and the use of Biblical materials in European and American literature, art, and music. (OC).

HUM 348  Warriors, Lovers, and Saints  3 Credit Hours
An in-depth examination of various personalities of the Middle Ages, both historical and fictional, who are distinctive for their martial prowess, their reputation as lovers, their piety, or some combination of these traits. Attention to these figures (e.g., Roland, Tristan, St. Augustine, and Abelard) will enable the class to consider important medieval norms of behavior, such as chivalry, courtly love, and Christian faith.

Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

HUM 349  Bible In/As Literature  3 Credit Hours
This course will study selected readings from the Bible, first in regard to their own literary, historical, and cultural contents, and then in regard to their reception, interpretation, and reapplication by later literary tradition. Biblical selections may cover both the Old and New Testaments as well as Apocryphal traditions, while readings from later non-biblical texts will be drawn from various literary periods.

Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

HUM 355  Urban Voices: France and Italy  3 Credit Hours
This course is an interdisciplinary approach to the concepts of urban development and literary, visual and cultural responses to the process of urbanization mainly in Rome and Paris. The readings will illustrate how the city shaped the writers' creativity, as well as how their works interpret urbanization.

Restriction(s):
Can enroll if Class is Freshman
HUM 356 Reading Urban Monstrosity  3 Credit Hours
This course questions the literary techniques and forms the English writers developed between 1660 and 1900 to characterize and imagine London to be a unified community and to counter the growing perception of London as a "monstrous city." This image of "the English-speaking City" as an uncontrollable monster may be explored in writings by Daniel Defoe, Jane Austen, Elizabeth Gaskell, Robert Louis Stevenson, Charles Dickens, Thomas Hardy, and Joseph Conrad. **Prerequisite(s):** (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

HUM 357 National Cinemas  3 Credit Hours
This course will introduce students to the national cinema of a select country. In contrasting the evolution of global cinema with the dominant genres and conventions of Hollywood, the course will enable students to critically examine non-Hollywood narratives; the interaction of various nationalist movements within the institution of cinema; and the ways in which world cinema has been inflected by various indigenous performance practices and other visual representations. (OC).
**Prerequisite(s):** FILM 240 or HUM 240 or FILM 248 or HUM 248 or ENGL 248

HUM 358 Shakespeare on Film  3 Credit Hours

HUM 366 Sexualities, Genders, & Bodies  3 Credit Hours
This course introduces key questions and debates in lesbian, gay, bisexual, transgender, and queer studies. Through engagement with multidisciplinary sources, students explore how sexualities, genders, and bodies are constructed and contested, how these constructions vary in diverse contexts and historical moments, and what gaps remain in our knowledge of LGBTQ lives. (YR)

HUM 371 Philosophy in Literature  3 Credit Hours
An exploration of philosophical problems as they are encountered in works of literature. Students electing this course must have successfully completed a previous course in philosophy or have permission of the instructor. (OC).
**Prerequisite(s):** PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 411 or PHIL 442 or PHIL 485 or PHIL 490

HUM 385 Black Cinema  3 Credit Hours
The course will examine selected films from African American and African film traditions in order to analyze how their cultural production is responsive to the conditions of social oppression, economic underdevelopment, and neo-colonialism. How film traditions define "Black aesthetics" will also be discussed. (AY).

HUM 388 W. African Music: Trad.&Glob.  3 Credit Hours
West African popular music contains a unique mixture of African, Cuban, European and American influences. With the advent of radio and recording, music that was once locally based is now part of a national and international popular music industry. This course offers an overview of modern West African music, both traditional and popular. The course begins with an introduction to traditional West African instruments and musical genres. Next, there is an exploration of the fusion of traditional African styles with European, Cuban and American styles during and after the colonial era. The course culminates with an examination of the contributions of West African musicians to the World Music scene, focusing on issues of representation and Fair Trade.
**Prerequisite(s):** MHIS 100 or MHIS 120 or MHIS 130 or MTHY 100 or AAAS 106 or AAAS 275 or HUM 100 or HUM 270

HUM 389 Nazi Germany  3 Credit Hours
The course traces the development of the Nazi movement from its ideological roots to Hitler's dictatorship, 1933-1945. Political events are interpreted in their social and cultural context to provide a comprehensive view of National Socialism. (OC).

HUM 390 Topics in Humanities  1 to 3 Credit Hours
Three Writers, Three Worlds: The Poetry of Eliot, Cesaire and Neruda. This course offers upper division students an intensive study of the works and lives of three poets who are considered among the greatest in their respective cultures and in the world: Pablo Neruda, Aime Cesaire, and T. S. Eliot. This will be an exploration of the artistic and aesthetic sensibilities of these poets, their development as intellectuals, the experiences that shaped their worldviews, and their engagement with significant historic movements or moments of the 20th Century.

HUM 395 Japanese Art I  4 Credit Hours
Japanese art from prehistoric Jomon period to end of Edo period, including painting, sculpture, architecture, and applied arts. Cultural developments on Asian mainland will be treated to provide proper placement of Japanese art within greater East Asian cultural context. Taught at the Japan Center for Michigan Universities, Hikone, Shiga Prefecture, Japan. (F).

HUM 396 Japanese Art II  4 Credit Hours
Continuation of Japanese Art I. Historical development of Japanese painting from Asuka to Edo periods. Approach both chronological and thematic in nature. Secular and religious painting will be discussed. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Prefecture, Japan. (W).
**Prerequisite(s):** HUM 395

HUM 3975 Humanities Thesis/Project  6 Credit Hours
The Humanities Thesis/Project is the culmination of the Humanities concentration, normally completed in the Senior year. Students will develop either a thesis or a research project designed to integrate and deepen their study of the three disciplines chosen for their concentration. The thesis will be done under the direction of one or more faculty members in their areas of concentration. The research project will normally be done in collaboration with a faculty member or an external organization, as approved by the student's project supervisor. Restricted to students in the Humanities concentration who have completed nine hours of upper-division courses with a "Humanities" listing. (F,W,S).
**Restriction(s):** Can enroll if Class is Senior
HUM 434  Renaissance and Baroque Rome  3 Credit Hours
The return of the papacy in 1420 initiated the reemergence of Rome as a major cultural center. This course examines painting, sculpture, architecture, and urban planning in Rome from the 15th to the 17th century, including the work of Raphael, Michelangelo, Bernini, Borromini, and Caravaggio. Topics to be explored include the birth of Renaissance archaeology and antiquarianism; humanism and the papal curia; urban renewal and conservation; pilgrimage and sacred topography; the myth of Rome; architecture of churches, villas, and palaces; tourism and the city as spectacle. This course is structured as a seminar that is writing and research-intensive. It is an interdisciplinary course that includes readings in literature, religion, urbanism history of art and architecture, and intellectual history.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

HUM 457  American Cinema  3 Credit Hours
This course will analyze how Hollywood as the nation's dream factory has manufactured fantasies and cultural myths that have constructed the image of American citizenship, both for Americans and non-Americans. It will establish the ideological function of Hollywood texts as providing unifying symbols for a fragmented society. (YR).
Prerequisite(s): ENGL 248 or HUM 248 or FILM 248 or JASS 248

HUM 467  Script-Writing Workshop  3 Credit Hours
This writing intensive course will train students to compose a film script, focusing on the substance, structure, and style of an original screenplay. The course will be conducted as a workshop in which students will first study classic scripts (and films based on these) of the film-school generation of directors, then model scenes and sequences of their own scripts on the principles of the above texts, and finally, write their own respective film stories in accordance with an appropriate narrative structure and design. (YR).
Prerequisite(s): JASS 310 or COMM 310 or COMP 310 or ENGL 310

HUM 4705  Black Women / Lit, Film, Music  3 Credit Hours
This course will examine works produced by Black women authors, activists, filmmakers and musical performers in order to determine the methods they have incorporated in order to challenge and eradicate the prevailing stereotypes about Black women while advancing their own personal and racial agendas. It will also focus on the extent to which race, gender, and class have shaped the creative work of Black women. Students will be required to read, discuss, analyze and write their own responses to the works of such firebrands as author Zora Neale Hurston, activist Ida B. Wells, filmmaker Julie Dash, and singer Billie Holiday.
Prerequisite(s): FILM 240 or FILM 248 or FILM 385 or AAAS 239 or AAAS 275 or HUM 303 or HUM 221 or HUM 222 or HUM 223 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 237 or ENGL 239 or ENGL 248 or ENGL 200 or ANTH 303 or PSYC 303 or SOC 303 or WGST 303
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters
HUM 477 Ethnographic Film 3 Credit Hours
This course will analyze ethnographic films as a medium for the construction of meaning in and across cultures. It will teach students to understand how the putatively "real" content of documentary film creates a mixture of fantasy, news and "science." Covering texts as varied as National Geographic photographic layouts, traditional ethnographic films made by anthropologists, and auto-ethnographies of cultural groups such as native Americans and the Trobriand Islanders of Papua, New Guinea, the course will aim to deconstruct such oppositions as indigene vs. alien, us vs. them, and self vs. other. Students cannot receive credit for both HUM 477 and HUM 577. (YR).
Prerequisite(s): FILM 248 or ENGL 248 or HUM 248 or ANTH 101 or JASS 248

HUM 485 Internship 3 to 6 Credit Hours
The Humanities Internship offers students experience in types of work available to liberal arts graduates. Attendance at individual conferences with the director and regular meeting of the Humanities/History Internship seminar is required. Credit applies to the degree as general elective and does not apply to concentrations, with the exception of Communications (3 credits if internship required toward major), Journalism and Screen Studies (3 credits if internship required toward major, with an additional 3 credits accepted as partial fulfillment of requirements in genres, modes and contexts), International Studies (3 credits of internship count toward cognate requirement), and Museum Studies (3 credit of internship count toward cognate requirement). Maximum total hours credit: 12. Graded Pass/Fail, (F, W, S)
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

HUM 490 Topics in Humanities 3 to 4 Credit Hours
Examination of problems and issues in selected areas of the humanities. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

HUM 497 Independent Studies in Hum 1 to 3 Credit Hours
Readings or analytical assignments in humanities in accordance with the needs and interests of those enrolled and agreed upon by student and advising instructor. (YR).

HUM 499 Directed Research 1 to 3 Credit Hours
See Humanities Concentration Advisor for more information.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Indust & Manufac Sys Engin (IMSE)

IMSE 150 Computer Science I 3 or 4 Credit Hours
This course provides a foundation for further studies in computer and information science. It emphasizes a structured approach to problem solving and algorithm development. Students learn principles of program design, coding, debugging, testing, and documentation. Student are introduced to the Unified Modeling Language for requirements analysis using use-cases and activity diagrams, an object-oriented programming language (C++), and the fundamentals of computer hardware, system software, and components.
Prerequisite(s): MATH 115*
Corequisite(s): IMSE 150L

IMSE 200 Computer Science II 3 or 4 Credit Hours
This course presents techniques for the design, writing, testing, and debugging of medium-sized programs, and an introduction to data structures (stacks, queues, linked lists) using the C++ programming language. C++ topics covered include pointers, templates, and inheritance. The principles of UML modeling are also introduced. This course will consist of three lecture hours and one two-hour laboratory.
Prerequisite(s): MATH 115 and (CIS 150 or CCM 150) or IMSE 150
Corequisite(s): CIS 275, IMSE 200L

IMSE 255 Computer Programming for Eng 3 Credit Hours
Intermediate topics in computer programming: arrays, files, structured data types, pointers, functions. Overview of digital computer hardware and system software components: machine architecture, operating systems, computer networks, data security, and performance evaluation.
Prerequisite(s): ENGR 100 or MATH 105 or MPLS with a score of 113

IMSE 299 Internship/Co-Op 1 Credit Hour
This is a Cooperative Education course. Students wishing to experience a work experience before graduation may elect to participate in the Cooperative Education Program (minimum of two terms). (F,W,S).
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

IMSE 3005 Intro to Operations Research 4 Credit Hours
This course introduces some basic techniques or operations research used in decision making and system performance evaluation in both deterministic and probabilistic environments. Topics in linear programming, especially the simplex method with duality theory and sensitivity analysis is included. Other topics include integer programming, deterministic dynamic programming, network problems, PERT-CPM, discrete-time and continuous-time Markov chain models of random processes, queueing theory and applications. (YR)
Prerequisite(s): (MATH 217 or MATH 227) and IMSE 317*

IMSE 317 Eng Probability and Statistics 3 Credit Hours
Set theory, combinatorial analysis, probability and axioms, random variables, continuous and discrete distribution functions, expectations, Chebychev's inequtiy, weak law of large numbers, central limit theorem, sampling statistics and distributions, point and interval estimation and linear regression. Three hours lecture.
Prerequisite(s): MATH 116 or MPLS with a score of 215 or MATH 114

IMSE 334 Org of Hospital Systems 3 Credit Hours
The fundamental concepts of organizational behavior are explored. The interrelationships among personnel in an organization, and the functions and responsibilities of individuals are discussed. Topics studied include decision-making theory, organizational authority and adjunct responsibility, leadership and supervision. Particular emphasis is placed upon hospitals and the health care industry. Lectures are supplemented with actual case studies from the health care industry in which the student has the opportunity to apply problem-solving techniques to true-to-life situations. Three hours lecture.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate
IMSE 350  Data Structures  4 Credit Hours
This course focuses on data design and algorithm designs. Data design topics include object-oriented discussions of hashing, advanced tree structures, graphs and sets. Algorithm design topics include the greedy, divide-and-conquer, dynamic programming, backtracking, and branch-and-bound techniques. A significant discussion of algorithm complexity theory, including time and space trade-off and elementary computability theory is included.
Prerequisite(s): CIS 275 MATH 115 and (CIS 200 or IMSE 200) and CIS 275

IMSE 351  Data Struc & Algorithm Anlysis  3 Credit Hours
Object-oriented design, programming, and analysis techniques review; structured programming concepts; data structures; algorithm design and analysis; lists, stacks, and queues; heaps, sorting, trees, graphs, and algorithm development utilizing modern languages, such as C++, Java.
Prerequisite(s): IMSE 255 or CIS 150 or IMSE 150 or CCM 150

IMSE 352  Intro to File Processing  3 Credit Hours
File processing environment, storage media, sequential, random and indexed sequential files, inverted lists, multitlists, tree structures, file control systems. Three hours lecture.
Prerequisite(s): IMSE 200 and CIS 175

IMSE 356  Real Time Computing  3 Credit Hours
Introduction to real time computing concepts applicable to discrete systems. Fundamentals of real time hardware, operating systems and C programming language. Selected coverage of instrumentation, input/output modes, data conversion, single task and multitask programming. Two hours of lecture and three hours of laboratory per week.
Prerequisite(s): IMSE 150 or IMSE 255

IMSE 381  Industrial Robots  4 Credit Hours
The course introduces students in engineering and computer science to fundamentals of robotics technology, programming and their applications in industrial environment. The emphasis will be on robotics anatomy and configurations, robotics kinematics, end effectors, use of sensors in robotics, robotics programming, design of robot workcell, robotics applications to production problems, cost justifications and robotics safety, rather than on the extensive theory of robotics. Three-hour lecture and three-hour laboratory per week.
Prerequisite(s): MATH 115
Restriction(s):
Can enroll if Class is Junior or Senior

IMSE 382  Manufacturing Processes  4 Credit Hours
This course introduces the students to the fundamentals and principles of manufacturing processes for engineering materials. It seeks to transfer an understanding of the application of principles of engineering materials and their influence on manufacturing processes. Topics covered include structure and manufacturing properties of metals, casting, heat treatments, bulk deformation processes, sheet metal working processes, processing of polymers and composites, surfaces and coating, powder metallurgy, machining and joining. Case studies of design for manufacturing and measurement of product quality; economical aspects and cost considerations in manufacturing systems will be studied. Three lecture hours and three laboratory hours.
Prerequisite(s): ENGR 250 and (ME 265 or ME 260)

IMSE 390  Selected Topics I  3 Credit Hours
Study of topics selected from any of the areas of Industrial and Systems Engineering. May include design or laboratory research.

IMSE 391  Selected Topics II  3 Credit Hours
Study of Advanced topics selected from any of the areas of Industrial and Systems Engineering. May include design or laboratory research.

IMSE 398  Independent Study in IMSE  1 to 3 Credit Hours
Individual study design or laboratory in an area of interest to the student. Contents may be chosen from any of the areas of Industrial and Manufacturing Engineering. The student will submit a report on his or her project at the end of the term. Written permission of the instructor required. (F,W,S).
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Graduate
Can enroll if College is Engineering and Computer Science

IMSE 399  Internship/Co-Op  1 Credit Hour
A four-month professional work experience period of the Engineering Internship Program, integrated and alternated with the classroom terms.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

IMSE 400  Programming Languages  4 Credit Hours
Systematic study of programming languages with regard to their implementation, structures, and use. Languages are compared with regard to their various data types, data structures, operations, control structures, programming environments, and ease of use in solving various programming problems.
Prerequisite(s): IMSE 350 or CIS 350 or CCM 350
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 421  Eng Economy and Dec Anlys  3 Credit Hours
Study of the concepts involved in the analysis of engineering management decisions, both short and long term. Time valued investments and the effects of depreciation and taxes in comparing alternatives are discussed. Specific attention is devoted to deterministic and probabilistic replacement policies for single and chain replacements of equipment. Basic elements of utility theory are introduced. Applications of decisions under risk, uncertainty, and of game theory to capital investment, bidding, and to competitive decisions are included.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

IMSE 437  Health Care Management  3 Credit Hours
This course is intended for those who have to deal with the administrative aspects of health care systems and not only the technical. The goal of the course is to provide the hospital staff member with an understanding of operations of the total hospital system. Topics covered include functions, problems, and organization of the medical agencies and their effect upon hospitals; methods of nursing staff organization; techniques of determining nursing staff levels; development of staff schedules; financial reimbursement and governmental regulations.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

IMSE 4425  Human Factors and Ergonomics  4 Credit Hours
The course integrates the elements of traditional methods of engineering and time-motion studies with ergonomics and human factors concepts. Methods improvement, work measurement, and work design, applied to manufacturing and service industries, so as to increase productivity and improve worker health and safety. The topics covered include: problem solving tools; operation analysis; time-motion analysis; work sampling; manual and cognitive work design; workplace, equipment, tool and work environment design; allowances; and lean manufacturing. Lectures and laboratory. (YR)
Prerequisite(s): IMSE 317 or BENG 364
Restriction(s):
Can enroll if Level is Undergraduate
IMSE 450 Operating Systems 4 Credit Hours
Introduction to computer operating systems. Process management, CPU scheduling, memory management, file systems and I/O devices. Advanced topics, e.g., multiprogramming and multitasking, virtual memory, deadlock, I/O, job scheduling, and performance analysis using queuing models, will be introduced. Case studies of modern operating systems. A design project is required.
Prerequisite(s): (CIS 350 or CIS 3501 or IMSE 350) or (ECE 370 and MATH 276) or (ECE 276 and IMSE 317 and ECE 370)

IMSE 451 Computer Graphics 3 Credit Hours
The mathematics, algorithms and data structures of computer graphics programming in 2 or 3 dimensions. Applications of computer graphics in Engineering Science and Data Processing.
Prerequisite(s): IMSE 351 or CIS 350 or CIS 351 or IMSE 350 or CCM 350

IMSE 453 Data Comm/Distributed Process 4 Credit Hours
Study of the technical and management aspects of computing networks and distributed systems. Topics include network architectures (ISO/OSI, TCP/IP, ATM), communication hardware (transmission media, network adapters, switches), encoding, framing, error detection and correction, reliable transmission, data link control and LAN technology, internetworking, routing/congestion control, network design/management.
Prerequisite(s): CIS 350 or CIS 3501 or IMSE 351 or (ECE 370 and MATH 276) or (ECE 370 and ECE 276) and IMSE 317

IMSE 454 Information Systems Design 4 Credit Hours
Role of information systems in organizations. Economic factors and social impact of information systems. Phases to design an information system: systems objectives and criteria establishment, fact investigation and analysis, feasibility study, output-input design, processing design, file and database design, safety and reliability considerations, detailed systems description, programming specifications, testing analysis and design skills will be assigned. A series of cases will be used in developing an information system. SQL will be used to develop data tables and access information. Three lecture hours and one three-hour laboratory.
(W)
Prerequisite(s): IMSE 255 or CIS 205
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 456 Intro to Data Base Systems 4 Credit Hours
An introduction to database system concepts and techniques. Topics covered include database environments, ER modeling, relational data model, object-oriented database, object-relational database, database design theory and methodologies, database languages, query processing and optimization, concurrency control, database recovery, and database security.
Prerequisite(s): CIS 350 or CIS 350A or IMSE 351 or (ECE 370 and MATH 276)

IMSE 457 Compiler Design 3 Credit Hours
The design and construction of compilers and programming systems. Lexical scan; parsing techniques; code generation and optimization. Run-time organization; storage allocation. Applications of formal language theory in compiler design. Translator writing systems; XPL. Three one-hour lectures.
Prerequisite(s): IMSE 350 or CIS 350 or CCM 350

IMSE 4585 Simulation in Systems Design 4 Credit Hours
This course introduces digital simulation as a design and modeling tool. The fundamental techniques of constructing a simulation model and evaluating the results are studied. A computer simulation software is used (such as ARENA, ProModel, Witness, Simul8). Topics include random number and random variate generation, input and output data analysis, design of experiments and optimization of simulated systems, verification and validation, discrete and continuous simulation models, comparison of simulation modeling software, and applications of simulation in different industries. Students are asked to select problems of interest and present final project reports. Four lecture hours. (YR)
Prerequisite(s): IMSE 317 and IMSE 3005*
Corequisite(s):
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 4675 Six Sigma & Stat Proc Improv 4 Credit Hours
Review of graphical methods, probability theory and statistics (stem-and-leaf plots, histograms, scatter diagrams, counting methods, axioms of probability, common discrete and continuous probability models, expectation, linear combinations, estimation, sampling distributions, confidence intervals, hypothesis testing, and A vs. B type of experimentation for both unpaired and paired data); introduce quality terminology in manufacturing and service industry contexts, study the theory, design and application of common statistical process control models for variables and attributes; study process capability and gauge and measurement capability methods; study the design and analysis, both graphical and analytic, of statistically designed experiments (one-way completely randomized designs, and randomized, complete block designs); study the application and analysis of two-level, factorial and fractional factorial designs. Learn to apply and interpret analysis of variance to above situations. Extensive analytic homework and applications used throughout course to motivate material. Each student completes an individual project of his/her own design, subject to instructor approval, entailing a modeling application or controlled experiment where the student collects the data. Four hours lecture. (YR)
Prerequisite(s): IMSE 317
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 4745 Facilities Design 4 Credit Hours
Analysis, planning and design of physical facilities utilizing research, engineering and economic principles. Synthesis of physical equipment and workers into an integrated system for either service or manufacturing activities. Design of material handling and storage systems. Layout of lean manufacturing facilities. Design of atmospheric, electrical, lighting, and life safety systems for a facility. Students are required to select problems of interest and present design project reports. (F)
Prerequisite(s): IMSE 3005*
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if Level is Undergraduate

IMSE 4835  Comp.-Aided Prcs Design & Mfg  4 Credit Hours
Study of the fundamentals of machine tool design, cutting tools, metal forming dies, and jig fixtures for practical applications in machining and assembly. Principles of design for manufacture and assembly as applied to tool and machine design. Laboratory exercises and projects are required using computer-aided design software. Two lecture hours and three laboratory hours.
Prerequisite(s): IMSE 382 or ME 381
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 484  CA Machine and Tool Design  3 Credit Hours
Study of the fundamentals of machine tool design, cutting tools, metal forming dies, and jig fixtures for practical applications in machining and assembly. Principles of design for manufacture and assembly as applied to tool and machine design. Laboratory exercises and projects are required using computer-aided design software. Two lecture hours and three laboratory hours.
Prerequisite(s): IMSE 382 or ME 381
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 486  Design for Assembly & Mfg  3 Credit Hours
This course will cover topics in manufacturing with emphasis on the parallel product design and selection of specifications for processes. Topics included are the principles of concurrent engineering, geometric dimensioning and tolerancing (GD&T), process engineering, process planning, cost estimating, and design for manufacturing. Projects using computer tools are required on a team-oriented basis.
Prerequisite(s): IMSE 382
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 488  Metal Forming Processes  3 Credit Hours
This course focus is on fundamentals of metal forming processes; mechanics of metal forming; formability of materials; tool and die design; design for manufacture; and economic aspect of the process. Emphasis is placed on analysis of bulk and sheet metal forming processes as applied to practical cases such as automobile manufacturing. Laboratory and course project are required.
Prerequisite(s): IMSE 382
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 489  Robotics Systems Simulation  3 Credit Hours
The course emphasizes the fundamentals of the design of robotics systems with the aid of robot simulation technology; structure and basic components of robots and robotics manufacturing workcells; control, kinematics, and dynamics of robots and manufacturing devices; robot accuracy and calibration of robot motion; applications of robots in manufacturing such as spot welding, arc welding, machining, assembly and CMM; robot simulation software such as ROBCAD or IGRIP. Course project is required. Available for graduate credit. (YR)
Restriction(s):
Can enroll if Level is Undergraduate

IMSE 490  Selected Topics  3 Credit Hours
Individual or group study, design or laboratory research in a field of interest to the student. Topics may be chosen from any of the areas of industrial and systems engineering including management, work measurement, methods, organization, industrial sciences, industrial mathematics, systems and procedures. If preliminary arrangements are made, the work internship periods can be used to formulate the problem and gather data. Completion of the analysis and submission of a report shall be done during the academic periods under the supervision of a faculty member or members. The student should be prepared for both a written and oral presentation of the report. This course is highly recommended as a technical elective. Permission of department.

IMSE 491  Directed Studies in IMSE  1 to 3 Credit Hours
Group study of contemporary topics in industrial and systems engineering and general systems design. Course may be elected for credit more than once under different instructors. Permission of department.
**Information Technology Mgmt (ITM)**

**ITM 347  Information Visualization  3 Credit Hours**
Full Title: Information Visualization: Business Insights via Storytelling Information visualization has been greatly in various disciplines including media, business, and engineering. It is valuable in helping people analyze and understand information to lead to better solutions and decisions. This course will introduce students to the field of information visualization via a hands-on approach. Readings and lectures will provide an overview of the field. Students will learn visualization design and evaluation principles and learn how to acquire, parse, and analyze large datasets. Students will also learn tools and techniques for visualizing multivariate, temporal, text-based, geospatial, hierarchical, and network/graph-based data. (F,W,S)

**Prerequisite(s):** ITM 310 and ITM 301

**ITM 387  Digital Security  3 Credit Hours**
Full Title: Digital Security: Threat Prevention and Management The ability to secure information within a modern enterprise-large or small-is a growing challenge. Threats to information security are global, persistent, and increasingly sophisticated. This course provides the practices and methods currently used by information security professionals to manage and secure an information environment. Topics include security strategy and policies, security operation center (SOC), network security, physical security, malware countermeasures, operational systems security, risk analysis and incident response practices. (F,W,S)

**Prerequisite(s):** ITM 383

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**International Business (IB)**

**IB 441  International Financial Mgmt  3 Credit Hours**
The objective of this course is to orient students to the increasingly internationalized financial environment in which business operates. As such, it attempts to broadly survey topics that frequently confront decision makers in financial management. These topics include the balance of payment mechanism, international capital flow, international monetary system and financial institutions, the mechanics of foreign exchange markets, international credit and capital markets, and financial problems of multinational business.

**Prerequisite(s):** FIN 401 and (DS 300 or DS 302*)

**IB 446  International Business  3 Credit Hours**
Designed as a survey course, International Business attempts to broadly cover the essential elements of international business. Topics will include: business in an international environment, theories of international trade and investment, international finance, corporate policy and strategy, functional management and operations, and international business relations.

**Restriction(s):**
Can enroll if Class is Senior
Can enroll if College is Business
IB 486  Seminar: International Bus  1 to 3 Credit Hours
This course explores issues of major importance to international banking. Topics discussed include the global banking environment, the operations of international commercial and investment banks, regulatory issues affecting the global banking industry, and international money and foreign exchange markets. The role, successes and weaknesses of multinational institutions for economic development are discussed along with the recently proposed reform measure. Students taking this course should expect to learn about the various categories of international lending and loan syndication, asset-related and project financing, international retail and private banking. They will gain skills in the various lending techniques practiced in global banking, and will obtain a better grasp of the problems facing international banking institutions today as a result of the continuous globalization of financial markets and the ever increasing consolidation of the industry.

Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

IB 496  Research: Int Business  1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit. Permission of College of Business.

Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Japanese (JPN)

JPN 128  Beginning Japanese I  5 Credit Hours
Japanese instruction at the beginning level. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Japan. Seven contact hours per week. (F).

JPN 129  Beginning Japanese II  5 Credit Hours
Continuation of JPN 128. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Japan. Seven contact hours per week. (W).

JPN 178  Accelerated Japanese I  5 Credit Hours
A demanding course that brings a student with little or no knowledge of Japanese through the beginning level into the intermediate level. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Japan. Seven contact hours per week. (F).

JPN 225  Accelerated Japanese II  5 Credit Hours
Continuation of JPN 128. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Japan. Seven contact hours per week. (F).

JPN 228  Intermediate Japanese I  5 Credit Hours
Japanese instruction at the intermediate level. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Japan. Seven contact hours per week. (F).

JPN 229  Intermediate Japanese II  5 Credit Hours
Continuation of JPN 228. Taught at the Japan Center for Michigan Universities, Hikone, Shiga, Japan. Seven contact hours per week. (W).

JPN 230  Contemp Iss Japanese Politics  3 Credit Hours
This course introduces students to modern Japanese politics. It combines a comprehensive survey of Japanese political systems and structures with an introduction to some of the key areas of controversy and debate in Japan today ranging from debates about the environment to Japan's place in the world.

JPN 231  Intro. to Japanese Lang. & Cul  3 Credit Hours
During the first three weeks of the program, students participate in a beginner-level Japanese language and culture course. This course integrates classroom learning with practice of new language skills and cultural knowledge during cultural activities, field trips and other activities.

JPN 232  Comparative Health Care  3 Credit Hours
This course acquaints students with Japan's unique health care system and how it compares to other models. Team-taught by professionals from Japan and the U.S., the course is augmented with a variety of site visits and guest lecturers.

JPN 233  Observ. Health Care Exp.  2 Credit Hours
Coordinated and supervised by the Shiga University of Medical Science (SUMS), students will spend a week in the SUMS teaching hospital observing and learning from doctors, nurses, graduate students, researchers and professors in their field of interest. Past observational studies have included experiences in nursing, radiology, physical therapy, intensive care, surgical units and more.

JPN 234  Japanese Economy & Business  3 Credit Hours
In this course, students can obtain fundamental knowledge on stylized facts of Japanese economy and Japanese firm systems as compared with those in the US and some other countries, and understand economic theories to put profound interpretations on them. Stylized facts seem to be old and some of them may have been obsolete, although they contain essential logical points. However, they are still useful for understanding Japanese economic systems. Thus, students are required to discuss current conditions on Japanese economy and firm system, considering stylized facts and theoretical backgrounds. It is essential to distinguish between changing phenomena and unchanged principles. Students have an opportunity to take a tour to a factory in a leading company. In the final class, students have to give team presentations and individually submit a short essay on the topics provided or the ones they come up with. As for the structure of classes, we cover fundamental stylized facts, economic theories (or theoretical frameworks), and data analyses (historically and currently). This course is composed of three parts: (1) Japanese economic system, (2) Japanese firm system and (3) Japanese macroeconomic conditions.

JPN 395  Japanese Society & Culture I  4 Credit Hours
Focused on modern Japan, the course will include Japanese geography and ethnography, with an emphasis on the Japanese idea of homogeneity. Japan's role in the international context will also be examined. Classroom work will be combined with field trips, in a writing-intensive approach. Taught at the Japan Center for Michigan Universities, Hikone, Shiga Prefecture, Japan.
**JPN 396  Japanese Society & Culture II**  4 Credit Hours
The prehistoric and historic roots of Japan. Political economy of contemporary Japan and future directions for the country. Classroom work will be combines with field trips, in a writing-intensive approach. Taught at the Japan Center for Michigan Universities, Hikone, Shiga Prefecture, Japan.

**JPN 397  Cross-Cult Business Comm/Japan**  3 Credit Hours
This course is to immerse students in cross-cultural communications within a Japanese context. The students explore the dimensions of culture through classroom/community activities, case studies, worksites, panel discussions, peer-led activities and simulations. Taught at the Japan Center for Michigan Universities.

**Restriction(s):**
Can enroll if Class is Freshman or Sophomore or Junior or Senior

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Journalism and Screen Studies (JASS)**

**JASS 2015  Fundamentals of Journalism**  3 Credit Hours
Study and practice in newspaper reporting and news gathering, interview techniques, and basic newswriting skills. Students will also discuss libel law, ethics, and the use of the Freedom of Information Act. (YR).

**Prerequisite(s):** COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

**JASS 240  Film and Society**  3 Credit Hours
A survey of the major genres of film, chiefly in historical and political perspective, but also in the light of important intellectual frameworks (e.g., feminism, psychoanalytical theory). The films selected, both Western and non-Western, will be examined both for their visual codes of meaning and for their wider role in developing a powerful social language in various cultural contexts. (YR).

**JASS 248  Introduction to Screen Studies**  3 Credit Hours
This course will introduce students to the development of world cinema by integrating the aesthetics of film with its technology, and its social and economic milieu. It will train the students in analyzing the formalist qualities of the medium, and in understanding the evolution of its various genres and styles. (YR)

**JASS 3015  Advanced Reporting**  3 Credit Hours
Advanced study and practice in news reporting and writing. Students will gain experience with in-depth reporting through coverage of developing news stories. Longer articles of publishable quality are required. (OC).

**Prerequisite(s):** COMP 2015 or JASS 2015

**JASS 302  Media Law and Ethics**  3 Credit Hours
The basis of reportorial journalism is its foundation in the First Amendment. This course examines the legal restrictions and freedoms governing print media and explores the ethical responsibilities of print journalists. Specific topics covered include First Amendment law, the clear and present danger standard, defamation and libel, privacy, obscenity, free press/fair trial, access, shield laws, and journalism ethics.

**JASS 303  Media Design & Animation**  3 Credit Hours
This course will introduce students to the fundamentals of graphic design in a convergent media landscape, with an emphasis on animation and motion graphics. Students will develop skills in the fundamentals of color, typography and layout, as well as build practical skills in animation technique. Animation projects may include animated lower thirds, motion graphics, kinetic typography or 2d/3d character animation, with applications for film, television and the web. Students may not receive credit for both JASS 303 and JASS 250 (F, W, S).

**Restriction(s):**
Cannot enroll if Class is Undergrad Certification only or Specialist or Post-baccalaureate NCFD or Undergraduate NCFD or Undergraduate NCFD or Post-baccalaureate Cert only or Graduate or Doctorate

**JASS 307  Copy Editing**  3 Credit Hours
Course covers manuscript and electronic editing of news and feature stories, editing for libel and taste, fact-checking, writing headlines and captions, and use of reference books. Includes a review of grammar and work usage, punctuation, spelling, and style.

**Prerequisite(s):** COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

**JASS 310  Narrative Journalism**  3 Credit Hours
Students learn to identify, understand and use the techniques of fiction in the service of nonfiction material. While studying the texts as literature, students are also encouraged to view them as models for writing. Assignments include the writing and revising of articles, based on research and interviews, and writing in story form, drawing on literary techniques. (YR).

**Prerequisite(s):** COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

**JASS 312  Media Performance**  3 Credit Hours
This course focuses on voice, diction, and movement for the various media of electronic and digital production. The emphasis is on developing skills in announcing, news reading, on-camera stand ups, voice-overs as well as dramatic interpretation and performance. Students will be exposed to a variety of projects and assignments, along with strategies for developing on-air personalities, voices, and characters. Basics of professional dress and makeup will also be discussed. Students will be expected to submit a professional portfolio of their on-air work at the end of the semester. (AY)

**JASS 315  Media Productn for Metro Comm**  3 Credit Hours
This community-based course partners with a community organization to produce media projects that serve the needs of the organization. Students will build skills in intermediate aspects of media production including concept development, research, proposals and pitching, scriptwriting, producing, shooting, editing, and sound design, as well as professional and organizational communication skills. Students will also develop a broader understanding of community engagement, citizenship, and issues impacting the Detroit Metro community. Productions will include both studio experience and fieldwork.

**Prerequisite(s):** COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

**JASS 330  Feature Writing**  3 Credit Hours
An introduction to the writing of feature stories for newspapers and magazines. Students study methods of gathering information and of preparing a manuscript for publication. (AY).

**Prerequisite(s):** COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
JASS 331  Online Reporting, Research, Writing  3 Credit Hours
Course introduces the technical, social, legal and ethical practice of online research, focusing specifically on reporting (i.e. research and interview) skills required by journalists and others. Students use new media technology to generate ideas, to research subjects, and to develop general-audience writing projects in their areas of interest. Course covers the use of Web search engines, directories and databases; finding sources and interviewing people online; evaluating the credibility of online sources and information; using Lexis-Nexis to access archives and public records; and using spreadsheet and database programs.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

JASS 332  Creating the Graphic Novel  3 Credit Hours
This course focuses on the creation of an original graphic novel from inception to fully developed story. Students work on character, plot development, dialogue, drawing style, and layout planning, and are encouraged to introduce any cross-disciplinary techniques such as digital applications when appropriate. Lectures and readings consider contemporary media.
Prerequisite(s): ART 202 or ART 206
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

JASS 333  Sports Reporting and Writing  3 Credit Hours
In this course, students not only learn how to write a sports story and report it across a variety of media, they also examine and write about relevant issues, from race and gender to sportsmanship and hero worship. In addition to assigned class readings, students read and report on one sports-related film and one book, chosen from a list of classics posted on CTools, and write a final paper in which they address an issue relevant to sports reporting. Local and national practitioners contribute their thoughts on a variety of subjects throughout the term.
Prerequisite(s): JASS 2015
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

JASS 334  Science and Environmental Journalism  3 Credit Hours
This course introduces the practice and theory of science and environmental journalism. Students report and write short science and environmental articles across a variety of media. They also examine the history, ethics and politics of environmental and science journalism and isolate a relevant issue as the focus of a research project, which will later generate a longer science/environment feature story. After instructor critique, students revise all work and submit a final ePortfolio.
Prerequisite(s): JASS 2105
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

JASS 335  Multimedia and Music  3 Credit Hours
In this course, students will explore case studies of music created, performed, and distributed in combination with other media from the 1960s to the present. Multimedia is understood as any context in which several media are integrated, but particular focus will be paid to technological and creative innovations (such as video games, computers, and phones). The use of music will be considered in such media as film and television, multimedia performance and installation art, and international developments in multimedia production and distribution.
Prerequisite(s): MTHY 100 or MTHY 101 or MTHY 102 or MHIS 100 or MHIS 120 or MHIS 130 or MHIS 150

JASS 336  Film and Music  3 Credit Hours
In this course, students will be introduced to the varieties of music used in film from c. 1900 to the present. Topics covered include a basic introduction to the musical features of Western European dramatic music; the role of music in the early decades of the 20th century; the growth of film and musical sound in the "classic era" of Hollywood film; the use of music in specific genres such as film noir, science-fiction, epic, and musicals; and the use of popular song in film. Prerequisite: previous completion of MHIS 100, 120, 130, or by permission of the instructor.
Prerequisite(s): MHIS 100 or MHIS 120 or MHIS 130

JASS 338  Business/Automotive Reporting  3 Credit Hours
This course covers two inter-related areas: finance and automotive journalism. Students learn how to cover the economy and business community, focusing on areas such as Wall Street, economic indicators, stocks and bonds. Since the University of Michigan-Dearborn is located in the heart of the world automotive industry, the course also emphasizes the skills necessary for a career in automotive journalism, specifically how to read and report auto-related financial, environmental, safety, labor, finance and manufacturing documents. An introductory course in Economics is recommended.
Prerequisite(s): JASS 2015

JASS 345  Audio Production  3 Credit Hours
This hands-on course will introduce students to the basic theories of audio and audio program production, including the fundamentals of digital audio and studio and remote recording. The course is designed to instill upon students the importance of sound in the electronic media and how its use or misuse can enhance or detract from media productions. Readings, lectures and projects are designed to teach students how to discern good audio from bad and how to avoid pitfalls media producers and directors commonly make. Through the practical application of audio concepts in the radio laboratory and through critiques of radio projects and programs, students will gain the insight and experience they will need to successfully design and execute audio strategies for the electronic media.
Prerequisite(s): ENGL 248 or HUM 248 or JASS 248 or FILM 248

JASS 350  Digital Film & Television  3 Credit Hours
Media production taught in the context of the history, aesthetics and technologies of film and television. Purpose of the course is to provide students with a working knowledge and critical awareness of digital production through classroom instruction and studio training. Course counts toward minor in Communications. (YR)
Prerequisite(s): (ENGL 248 or HUM 248 or JASS 248 or FILM 248)

JASS 357  National Cinemas  3 Credit Hours
This course will introduce students to the national cinemas of a select country. In contrasting the evolution of cinema in the East, with the dominant genres and conventions of Hollywood, the course will enable students to critically examine non-Hollywood narratives; the interaction of various nationalist movements within the institution of cinema; and the ways in which world cinema has been inflected by various indigenous performance practices and other visual representations. (OC)
Prerequisite(s): HUM 240 or JASS 240 or FILM 240 or ENGL 248 or HUM 248 or JASS 248 or FILM 248
JASS 370  Narratives of Film and Lit  3 Credit Hours
Explores the narrative conventions of literary and filmic fictions in a
cultural, historical and psycho-analytical context. The course goes
beyond a discussion of the relative merits of novels and their respective
film adaptations and examines the more complex interchanges
between the two narrative forms; the ideological function of narrative in
contemporary society; and the effect of the medium of a fictional text on
the reader/viewer. (OC).
Prerequisite(s): ENGL 248 or HUM 248 or JASS 248 or FILM 248

JASS 378  History of U.S. Broadcasting  3 Credit Hours
A survey of the history of broadcasting in the United States, from the
development of radio at the turn of the 20th century to the rise of cable
television in the late 20th century. The course focuses on the business,
political and demographic factors guiding the various broadcast
industries; the development and shifts of programming genres over time;
and a wide look at the social impact of broadcasting in the country.

JASS 380  History of American Journalism  3 Credit Hours
This course surveys the history of American journalism from the Colonial
period to the present. Topics explored include the development of print
journalism, the rise of the reading public, the growth of advertising,
photojournalism, and the tabloid press, and the evolution of electronic
journalism from radio and television through the computer age. (YR).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a
score of 40 or COMP 280

JASS 381  Postwar European Cinema  3 Credit Hours
The course will concentrate on a series of films from various European
countries with a focus on the socio-political issues, historical events and
cultural preoccupations that have defined and also challenged European
societies from WWII to the present. Zeroing in on the construction of
European identities, the course will analyze and compare modes of
narrating national, class, racial, sexual and social differences in different
European nations. Themes such as memories of war and the Holocaust,
new conflicts, class, immigration, women's rights, gender, and East-West
relations will be addressed. The course will thus privilege a cinema that
offers a "recit," a story. Particular attention will be given to discourses on
otherness and on the ways in which film culture has reflected, reinforced,
reshaped and, in some instances, contested Europe's past and current
dominant ideologies, and identities. Readings by cultural historians and
analysts will provide the context for an understanding of the films. The
course will conclude with a discussion of the possible existence of a
specific postwar European Cinema.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

JASS 385  Black Cinema  3 Credit Hours
This course will examine selected films from African American and
African film traditions in order to analyze how their cultural production
is responsive to the conditions of social oppression, economic
underdevelopment, and neo-colonialism. How film traditions define "Black
aesthetics" will also be discussed. (AY).

JASS 387  Gender, Sex, Power Screen Studies  3 Credit Hours
This course examines representations of gender and sexuality across
multiple screens, with a particular emphasis on Hollywood, independent,
and non-Western cinema. In addition, the course explores intersections of
gender with race, class, and ability to further investigate power structures
in contemporary screen studies. The course will engage with a range
of debates in film theory and women's and gender studies, and enable
students to apply concepts and theories to specific media texts.
Prerequisite(s): HUM 240 or JASS 240 or ENGL 248 or HUM 248 or
JASS 248 or FILM 248 or FILM 248 or WGST 275 or WGST 303 or ANTH
275 or ANTH 303 or PSYC 275 or PSYC 303 or SOC 275 or SOC 303 or
WST 275 or HUM 275 or HUM 303

JASS 390  Topics in JASS  3 Credit Hours
Examination of problems, issues, technology and critical issues in
advanced subject areas in journalism and screen studies. Title as listed
in schedule of classes changes according to content. Course may be
repeated for credit when specific topics differ.
Restriction(s):
Can enroll if Class is Junior or Senior

JASS 398  Independent Study in JASS  1 to 3 Credit Hours
Readings, supervised practice or analytical assignments in Journalism
and Screen Studies, determined in accordance with the needs and
interests of those enrolled. May count toward JASS minor.
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Arts, Sciences, and Letters

JASS 401  Interpretive Journalism  3 Credit Hours
A study in the reading and writing of newspaper columns, editorials and
reviews. Course prepares students to write newspaper columns as well
as reviews and interpretive pieces on the arts. It examines current writing
on literature, drama, cinema, graphic arts and music, and includes a study
of the newspaper/magazine column.

JASS 402  Investigative Reporting  3 Credit Hours
A course in investigating a subject and writing a publishable story.
Course covers the rudiments of investigative reporting: preliminary
research, story selection, investigative strategies and resources,
interviewing, and evaluation of material. Examines the history and
current status of investigative reporting, including its ethics and
politics. Students write and edit several articles and focus on two longer
investigative pieces. (YR).
Prerequisite(s): COMM 2015 or JASS 2015

JASS 403  Issues in Cyberspace  3 Credit Hours
This course will explore some of the current social, political, legal, and
technological issues associated with the use of new media technology to
move ideas and information in a democratic society. Examples of areas to
be explored include the Internet and World Wide Web, privacy, the
future of the mass audience, and the meaning of the First Amendment in
the 21st Century. Students cannot receive credit for both COMM 403 and
COMM 503. (OC)
Restriction(s):
Cannot enroll if Class is Graduate

JASS 404  Video Game Studies & Criticism  3 Credit Hours
This course will explore some of the current social, cultural, legal,
and aesthetic issues associated with video games as an immensely
popular new media technology that has sparked a dynamic user culture.
Examples of areas to be explored include ludology and narratology,
narrative architecture and game spaces, ethical questions and
controversies, and player experience and communities. (YR)
JASS 405  New and Emerging Media  3 Credit Hours
This workshop-oriented course focuses on expanding conceptual and technical skills in emerging forms of media storytelling in an online context, including interactive narrative, collage, database cinema, eBooks, and apps for mobile devices. The course integrates a range of software and interfaces with an emphasis on the conceptual and creative applications of these tools. Students may not receive credit for both JASS 405 and COMM 405. Students who have taken JASS 405 under the course title ?Web Design? are not allowed to take the course for credit again under the title ?New and Emerging Media.?
Prerequisite(s): (COMP 106 or CPAS with a score of 40) and (JASS 345 or JASS 350)

JASS 406  History&Theory of Documentary  3 Credit Hours
This course surveys the history of European documentary and explores its ethical, legal and economic issues. Students study documentary's central moments, forms and artists; the changing theoretical approaches to documentary making; and the range of documentary purposes (informational, educational, propagandistic, entertainment). The course also provides historical and theoretical background fro those students who wish to pursue their interest in documentary in the script-writing and production courses also offered in the Journalism and Screen Studies Discipline.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

JASS 410  Advanced Media Production  3 Credit Hours
The course covers advanced concepts in media production and provides a pre-professional opportunity to direct. Elements include scripting and organization, producing, and post-production editing techniques. Emphasis is placed on individual and small group work in both field and studio settings, leading to the creation of a professional broadcast-quality portfolio program or segment. May be repeated once for credit.
Prerequisite(s): JASS 350 or COMM 350 or JASS 405 or JASS 406 or JASS 345

JASS 413  Photojournalism  3 Credit Hours
A hands-on digital imaging course in which students learn the basics of photojournalism and photography, including subject selection, composition, cropping, retouching and caption writing.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

JASS 421  Environmental Filmmaking  3 Credit Hours
Environmental Filmmaking combines theory and practice in the examination of issues related to the environment and ecology as represented in film and television. Students will analyze the industry's ability to effectively communicate and integrate scientific and technical information about the natural world to target a mass audience. The course will include online screenings selected from a variety of eras and genres, readings in the field of eco-criticism, the development of a documentary treatment and the production of an original multimedia project focusing on an environmental issue. (F, AY)
Prerequisite(s): JASS 248 or ENST 301

JASS 423  Comm Design for Web & Mobile  3 Credit Hours
An introduction to the technology, strategies, and outcomes that drive design development for mobile-friendly web sites and graphics. Instruction in the use of the concepts, design principles and technology to create a working mobile website.
Prerequisite(s): JASS 250 or JASS 303

JASS 436  Memoir and Travel Writing  3 Credit Hours
A course in narrative non-fiction that focuses on memoir and travel writing. Reading involves several books as well as classic essay-length examples. Assignments include both short analytical papers and the writing and revising of three original articles, based on research, interviews, memory, and observation, and drawing on literary techniques. (YR).
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

JASS 440  Theory of the Screen  3 Credit Hours
A study of the art, technology, language and theory of the screen arts through an analysis of their formalist elements and medium-specific codes. Film language, representations of art and reality, authorship, spectatorship and globalization are among the core concepts that will be examined. The course includes extensive online screenings of a variety of films encompassing a number of different forms and genres. (F)
Prerequisite(s): JASS 248

JASS 457  American Cinema  3 Credit Hours
This course will analyze how Hollywood as the nation's dream factory has manufactured fantasies and cultural myths that have constructed the image of American citizenship, both for Americans and non-Americans. It will establish the ideological function of Hollywood texts as providing unifying symbols for a fragmented society. (YR).
Prerequisite(s): ENGL 248 or HUM 248 or JASS 248 or FILM 248

JASS 467  Script-Writing Workshop  3 Credit Hours
This writing intensive course will train students to compose a film script, focusing on the substance, structure, and style of an original screenplay. The course will be conducted as a workshop in which students will first study classic scripts (and films based on these) of the film school generation of directors, then model scenes and sequences of their own scripts on the principles of the above texts, and finally, write their own original film stories in accordance with an appropriate narrative structure and design. (YR).
Prerequisite(s): JASS 310 or COMP 310 or ENGL 310 or COMM 310

JASS 477  Ethnographic Film  3 Credit Hours
This course will analyze ethnographic films as a medium for the construction of meaning in and across cultures. It will teach students to understand how the putatively "real" content of documentary film creates a mixture of fantasy, news and "science." Covering texts as varied as National Geographic photographic layouts, traditional ethnographic films made by anthropologists, and auto-ethnographies of cultural groups such as Native Americans and the Trobriand Islanders of Papua, New Guinea, the course will aim to deconstruct such oppositions as indigene vs. alien, us vs. them, and self vs. other. Students cannot receive credit for both FILM 477 and FILM 577. (AY).
Prerequisite(s): ENGL 248 or HUM 248 or JASS 248 or ANTH 101 or FILM 248

JASS 497  JASS Thesis  3 Credit Hours
A thesis project that is the culmination of the Journalism and Screen Studies major. Students choose the project area and write a thesis (40-50 pages) under the direction of a JASS faculty member. The thesis option is available only to students with substantial practical experience in the field of journalism or screen studies, and requires the approval of the JASS faculty. This course is available only to Junior/Senior students majoring in the JASS program.
Prerequisite(s): JASS 2015 and JASS 248 and JASS 310
Restriction(s):
Can enroll if Class is Junior or Senior
An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:

- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

### Latin (LAT)

**LAT 101**  
**Beginnig Latin I**  
4 Credit Hours

An introduction to reading and translating Latin. The strong influence of Latin on the formation and meaning of English (as well as French, Spanish, and Italian) will be used to illuminate the importance of Latin for understanding western languages and thought. Literature appropriate for the level will be read. (F).

**LAT 102**  
**Beginnig Latin II**  
4 Credit Hours

A sequel to Beginning Latin I. Literature appropriate for the level will be read. (W).

**Prerequisite(s):** LAT 101

### Law & Environment (LE)

**LE 252**  
**Personal Business Law**  
3 Credit Hours

This course is designed for the non-business student and includes business law topics of direct interest in the management of personal business affairs. Topics covered are: product safety regulation, contracts, personal property, real estate, mortgages, landlord-tenant, wills and estates, insurance, employer-employee relations, unfair business practices, and an introduction to the lawmaking and enforcement processes.

**Restriction(s):**

- Can enroll if Class is Sophomore or Junior or Senior or Graduate

**LE 253**  
**Business Law 3 Credit Hours**

To introduce students to laws and regulations that impact the business environment. Topics include business litigation, the regulatory environment, contracts, sale of goods, and legal considerations in dealing with employees, competitors, suppliers and customers. (F,W,S)

**Restriction(s):**

- Cannot enroll if Class is Freshman

**LE 452**  
**The Legal Environment of Business**  
3 Credit Hours

To introduce the management student to the functioning of legal systems and the effect of regulation on the business environment. Topics covered include an exploration of legal and ethical forces that impact the policy and practice of business in dealing with customers, employers, owners, and competitors.

**Prerequisite(s):** COMP 106 or COMP 270 or COMP 280 or COMP 220 or CPAS with a score of 40

**Restriction(s):**

- Can enroll if Class is Junior or Senior

**LE 453**  
**Business Law: Advanced Topics**  
3 Credit Hours

To study advanced topics in business law, including sales, secured transactions, and other portions of the Uniform Commercial Code; advanced topics in contract law; the legal advantages/disadvantages of various types of business entities, and legal steps in formation and governance; aspects of corporate law; the law of agency; and other selected topics.

**Restriction(s):**

- Can enroll if Class is Junior or Senior

### Liberal Studies (LIBS)

**LIBS 101**  
**Founditations of Academic Success**  
1 Credit Hour

This course is intended to introduce students to the nature and purpose of higher education, and of academic inquiry. Academic planning, information literacy, bibliographic search techniques and the evaluation of electronic information are discussed.

**LIBS 111**  
**To Infinity and Beyond**  
3 Credit Hours

In this seminar we explore the emergence and evolution of concepts surrounding zero, infinity, and dimension. These mathematical topics are introduced in a historical context as the by-products of human enterprise. Students study foundations of number systems, investigate objects with fractional dimensions, gain an understanding of logic as it applied to proof methodology, and develop visualization skills, creating a tangible experience with abstract mathematical objects and concepts. The supporting material is drawn from selected readings, as well as films and videos. (F).

**Corequisite(s):** COMP 105

**Restriction(s):**

- Can enroll if Class is Freshman

**LIBS 112**  
**Car Culture**  
3 Credit Hours

A study of the impact of the automobile on contemporary American culture and society using the concepts and approaches of the multidisciplinary field of Science and Technology Studies. The course examines the social contexts and consequences of how cars are designed, assembled, marketed, driven, and regulated; their role in shaping individual, group, and national identity; and their place in the American imagination. (F).

**Corequisite(s):** COMP 105

**Restriction(s):**

- Can enroll if Class is Freshman
LIBS 113  The World in a Grain of Sand  3 Credit Hours
From a single artifact (an object or a text), students will learn to build an understanding of an entire culture in a given historical moment. First by analyzing the artifact and then by building a larger context in which to interpret the significance of that artifact, students will also build their own academic community. By the end of the course, each student will have mastered the use of all library research resources and have developed a specific expertise in an area of research related to the artifact. By the end of the course, the class will have organized its own academic conference on the artifact in which they will share their research and insights. The professor will be a specialist in the area from which the artifact is selected and will guide you in your mastery of research skills and acculturation to academic life. (F).
Corequisite(s): COMP 105, COMP 106
Restriction(s):
Can enroll if Class is Freshman

LIBS 114  The Roots of American Activism  3 Credit Hours
This course examines the history, rhetoric, and social context of American citizen activism in the nineteenth and early twentieth centuries. Topics will include African American abolitionist and civil rights activism, women's suffrage, the home economics movement, the labor movement, educational reform, and student political involvement on college campuses. We will also pay special attention to how these movements played out locally. Our goal throughout will be to understand how ordinary citizens used language to effect social change - and how we today might do the same. (F)
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman

LIBS 115  Shakespeare: Stage/Page/Screen  3 Credit Hours
What has made the plays of Shakespeare so relevant to a well-rounded education in universities around the world? How do Shakespeare's plays transcend his period making him, in Ben Jonson's words, "not of age, but for all time"? In this course we shall discuss the literary, stage and film traditions of Shakespeare's plays as well as the wholesale borrowings from, echoes and parodies of them in popular culture, from Dr. Who to graphic novels, and the commercialization of Shakespeare in such unlikely mediums as Levis jean commercials. This course challenges students to consider how the medium of the artistic work (e.g. film, play, illustration) affects interpretation and how the artistic work is conditioned by the social contexts of its time. From comic books to live performance, Slings and Arrows to Kenneth Branagh, this course explores the textual, performance and visual history of a selection of Shakespeare's plays and the cultural significance of Shakespeare today. Note: the course will include an excursion to see a play at the Stratford Shakespeare Festival in Ontario, Canada.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman

LIBS 116  Fast Food Nation  3 Credit Hours
This course explores the role of fast food in our society. Fast food is something we take for granted, yet it has helped shape our culture as well as our economy and is a key symbol of the American lifestyle to the rest of the world. In this course we will examine the history of the fast food industry, the nature of work in the fast food sector, the global reach of corporations like McDonald's and Starbucks, the environmental impact of food production, and the rise of the "slow food" movement. The course will introduce students to perspectives from the social and behavioral sciences including economics, sociology, anthropology, environmental studies, science and technology studies, politics, and history. (F)
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman

LIBS 117  The Conscious Brain  3 Credit Hours
This course will use visual perception and its organization in the brain and related phenomena such as attention and memory as tools to explore the issue of where in the brain consciousness is located, and what the necessary and sufficient criteria for consciousness are. A central premise is that consciousness, formerly the sole province of philosophers, can now be studied empirically using scientific methodologies. (F)
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman

LIBS 118  Gender & Relationships  3 Credit Hours
This course will focus on gender and close relationships. We will examine how pop culture (including popular movies and self-help psychology books) tend to construct gender as a naturally occurring dichotomy, emphasizing the "vast" differences between women and men. For example, John Gray's relationship self-help book titled "Men are from Mars, Women are from Venus" has sold millions of copies and has helped to perpetuate the idea that women and men are so different as to be considered different species. The course will introduce students to perspectives from various disciplines including psychology, sociology, communications and gender studies. Using theory and scientific research from these various disciplines, students will learn to critically examine the ways that gender and close relationships are portrayed in our society.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman

LIBS 119  Culture Wars  3 Credit Hours
This course explores the aspects of the conflict between religion and science in America using the Scopes Trial of 1925 as the primary case study. The trial centered on the teaching of certain ideas generally thought to be part of Charles Darwin's theory of evolution via natural selection. These claims will be evaluated by examining the science of Darwin's "On the Origin of Species". The political debate will be examined first in the context of Thomas Jefferson's writings on democratic policy and science, and then from the perspective of early populist and fundamentalist reaction to Darwinism. The subsequent development of Darwinism patterns in American social, ethical, and literary thought will also be explored, as will the rise of the modern creationist movement. The course will conclude with an analysis of the political, educational, and scientific response to that movement.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
LIBS 120  World War II and the Cinema   3 Credit Hours
This course seeks to explore how the Second World War has been depicted to American audiences during the previous half century. It focuses on ten major films. The first half of the course examines a series of themes uppermost in the minds of directors during the conflict; the second half of the course will explore how the legacy of the war has been remembered during the previous half century.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman

LIBS 121  East Meets West: Global Conn   3 Credit Hours
This seminar will introduce students to the following: (1) key primary sources for China and East Asia that focus on global interconnections and exchanges; (2) key theoretical issues tied to thinking about global interconnections; and (3) suggested further readings in secondary sources. Upon completion, students will be familiar with some of the basic ways to think and to find out about exchanges and interactions in world history, and to incorporate Chinese and East Asian materials (in translation) into their research.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman

LIBS 122  Writing about College Life   3 Credit Hours
In this class we will look at how our own experiences conform to or challenge popular myths and narratives about the historical and contemporary college experience in America. We will study how college life is constructed in novels, newspapers, diaries, letters, personal interviews, essays, textbooks and films. While reading and writing about the college experience, we will address the intersection between fact and fiction and explore how print and visual representations might shape our perceptions of our world. Overall, students’ own stories as college students will be crucial to the class’s investigation, assessment and production of college life narratives.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman

LIBS 123  Cognitive Science Fiction   3 Credit Hours
What does it mean to be human? Can machines fall in love? Can our consciousness be transmitted to another human being or substance? Is language fundamental to communication of thought? Is so how would communication with other life forms proceed? These questions have traditionally been the domain of science fiction. However, given advances in technology, scientists are asking these questions with increasing frequency. This course explores the interplay between science and fiction. Each week we will examine a particular question through both science and fiction (book, film, etc) and see to what extent the science coincides with, or deviates from, the fiction. There will be a heavy emphasis on topics in cognitive science - an interdisciplinary science of mind and intelligence encompassing fields such as cognitive psychology, philosophy, linguistics, neuroscience and artificial intelligence.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman

LIBS 124  Wireless World   3 Credit Hours
An examination of the impact of current Internet-based services on such fields as journalism, publishing and research. By critically examining such phenomena as blogs, social networking systems (MySpace and Facebook), and Wikipedia, students will develop critical literacy and become more effective readers, writers and researchers.

Corequisite(s): COMP 105

LIBS 125  Apathy 2 Action: Amer Citznshp   3 Credit Hours
An examination of American citizenship as understood and practices in a variety of arenas of public life. We will examine both historical and contemporary perspectives on citizenship, including the ways in which public discourse helps situate Americans’ understanding of the idea of citizenship, and by extension, the practice of democracy. In addition to exploring citizenship as it operates in the political arena and civil society, we will emphasize the role of higher education in nurturing active citizenship. This seminar includes an academic service learning requirement. Academic service learning is an educational method that integrates volunteer community service with course material to enhance the learning objectives of the course. Students will be expected to participate in a carefully-chosen and instructor-approved civic activity (e.g., volunteerism, democratic participation, public advocacy) that will highlight different models of citizenship in practice.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 126  Anthropologists on Campus   3 Credit Hours
Anthropology professors have studied the lives of university students (My Freshman Year; Coming of Age in New Jersey). This course turns the tables, inviting new students to conduct field work on the hidden lives? of professors, university staff and other students. Through guided practice in ethnographic skills-interviewing and participant-observation-students will come to understand what culture means to anthropologists while exploring the multiple cultures of UM-Dearborn and gaining insights on meanings and functions of higher education.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 127  Oceans of Data   3 Credit Hours
This course will pursue two distinct themes. The first is the triumphs of modern statistical methodology in science during the last hundred years. Definitive studies such as the Salk Vaccine Field Trials and those involving the smoking and lung cancer controversy will be examined in depth. The second theme is the awareness and use of public access databases, which are also used by researchers and policymakers. These include the National Health and Nutrition Examination Survey (NHANES), the Surveillance Epidemiology and End Results (SEER) database of cancer registries, the Statistical Abstract of the United States, and SearchSystems.net Public Records Directory. The course will involve a number of readings and the interpretations of data that will form the basis of classroom discussion and written reports.

Corequisite(s): COMP 105

Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters
LIBS 128 Exploring Race and Identity  3 Credit Hours
This seminar will examine a variety of models of mental health in African Americans and racial, ethnic and self-identity development. The impact of Black society, culture, family, racism and poverty on personality growth of African Americans will be explored. The history of Black psychology and the pioneer theorists who have made significant contributions to foundation and continuing study of the thoughts, feelings, behaviors and mental health of African Americans will be discussed.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 129 Trauma, Text, & the City  3 Credit Hours
An exploration of how artists and writers represent urban trauma (terror, violence, destruction, absence) to describe indescribable suffering. In the wake of urban chaos, how do writers make urban community possible? To answer this question, we will examine traumatic events in New York City (9/11) as well as Detroit to understand how emails, photographs, novels, documentaries, and films try to narrate chaos and stabilize urban history. In addition to films that experiment with narrative (such as Memento [2000] and documentaries about 9/11 and Detroit), texts may include writings by psychologists (Freud), urban historians (Sugrue), cultural theorists (Baudrillard), and novelists (Joseph Conrad).
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 130 Liberal Arts & the Professions  3 Credit Hours
A liberal arts perspective on careers and professions. Topics include the historical relationship between a liberal arts education and professional training, the development of the concepts of ?career? and ?profession,? sociological and psychological understandings of professions and workplaces, and accounts of work in several different professions (such as journalism, teaching, and medicine). Assignments focus on enhancing the connections between academics and career preparation. Students enrolled in Libs 130 must also enroll in Exploratory Studies 102, a one-credit career-planning course that assists students in assessing their interests, skills, and values and in identifying and researching careers.
Corequisite(s): EXPS 102

LIBS 131 Understanding Global Cultures  3 Credit Hours
Globalization is the predominant interpretative concept through which we analyze the state of the planet in general, and the intermingling of cultures in particular. This course proposes a comprehensive examination of cultures around the world to first-year university students. A transdisciplinary approach (history, political science, economics, geography, and anthropology) will introduce students to a wide breadth of content and depth of contextualization, and enhance their understanding of the complexities of the (post)modern world. In addition to readings on the main groups of world cultures, we will analyze several films that address the issues of cultural identity and globality. The question of stereotyping cultures will be discussed through examples of parodic representations of cultures. The course will also address the tensions between local ways of life (historical, linguistic, ethnic, and religious) and today's pressures for transnational and multiple identities, intensified by the communication of ideas and the movement of people around the world. Thus, we will also look at how the cultures of immigrant communities in southeast Michigan have contributed to the local cultural configuration.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman

LIBS 132 Engaging Communities  3 Credit Hours
This course studies concepts of community and service within American culture. It traces the development of civic life in the U. S. by examining the promises and challenges of community and citizenship, especially questions of inclusion and exclusion in American civic life. Students are expected to engage in some form of active citizenship with this question in mind: What individual and collective actions are most effective in making our communities into places in which each person can thrive?
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 133 Jesus and the Gospels  3 Credit Hours
Who is Jesus of Nazareth? For centuries people seeking and answer have turned to the four gospels of the New Testament. But how reliable are these texts? Were they written as biographies, histories, or to fulfill other purposes? This course will address these and other questions associated with the quest for the historical Jesus. Students will be introduced to a variety of approaches involved in the literary-historical study of the gospels and New Testament backgrounds, and learn about the methods scholars employ to move from these texts and contexts to an historical portrait of Jesus. Attention will also turn to wide range of gospels not found in the New Testament to see what light they can shed on the Jesus? identity.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters
LIBS 134  Nano-fiction  3 Credit Hours
Students in this seminar will explore a collection of extremely short stories—weird and wonderful stories that manage to ignite the imagination and evoke complex realities in just a few pages. Discussion of the stories, guided by provocative questions and thought experiments, will help students develop ways to navigate texts, subtexts, and contexts at a college level; to write more critically and analytically; and to read with more confidence and passion. The seminar will incorporate a series of short, focused writing assignments and some creative research projects. The goal is to discover rich worlds in tiny packages?and return safely, if somewhat altered, to the real world.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 135  Urban Monsters&Suburb Angels  3 Credit Hours
If cities are the centers of human civilization, then why have we inherited such horrific stereotypes of urban environments? This course analyzes how writers (screenwriters, dramatists, urban theorists, architects, novelists, and poets) tried to reimagine cities (both in America and Britain) as both a unified community of English-speaking individuals and a globalizing model of ?civilized? social organization between 1660 and the present. In doing so, the course argues that our understanding the ?monstrous? connotations of cities depends upon our imagining the simultaneous creation of morally ?angelic? middle-class suburbs in both gothic and horror writing and visual art. Reading may include Dracula, Journal of a Plague Year, The Strange Case of Dr Jekyll and Mr Hyde, Linden Hills, and The Jungle.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 136  Bad Decisions  3 Credit Hours
The course is based on a recent book by Daniel Kahneman, entitled "Thinking, Fast and Slow". The book is based on the premise that the human brain supports two different modes of thought: (a) a largely unconscious mode that is capable of processing large amounts of information quite quickly, and (b) a slower mode that operates more on the basis of logic. The goals of the course would be to (a) make sure students understand these two modes and the accompanying data and rationale that support the two modes, (b) understand and be able to apply the fairly simple methodology that underlies many of the related experiments, (c) improve one's own thinking by learning when to rely on each of the two systems and how to avoid the pitfalls associated with each, and (d) be able to extend the literature by performing novel follow-up experiments based on those already performed.
Corequisite(s):
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 137  American Horror Stories  3 Credit Hours
This course analyzes American culture through the lens of its horror industry: in film, literature, art, and other forms of artistic and popular culture. Horror, because of its nature as an extreme form of representation and its association with the imagination rather than reality, has the ability to reveal certain truths and theories about history, culture, and ways of being that are difficult to access through other modes of expression. This course explores these truths and theories by studying American horrors in a way that contextualizes film, stories, art, and other forms of popular culture within particular social, political, and historical moments. Examples include: Cold War horror productions (the short stories of H.P. Lovecraft and Richard Matheson) and the use of aliens and other invaders as a stand in for outsiders and ?others,? domestic horrors like The Nightmare on Elm Street and Beloved and the ways in which violence, gender, race and the home intersect, and a study of post-feminist heroines in Buffy the Vampire Slayer and Pretty Little Liars.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 138  Wild Thing:Attitudes-Animals  3 Credit Hours
This course is an interdisciplinary study of the concepts of what it means to be human and how that compares with other animal species. By examining the various ways in which nonhuman animals are objectified in their relationship to humans through religious teachings, portrayed in the media sometimes anthropomorphically, and the ways in which humans make use of animals, students will engage in their own academic inquiry leading to in-depth class discussions about the concept of what it means to be a human and a nonhuman animal. These investigations and discussions will be based on readings and other sources to guide students? understanding of their own and other’s attitudes to human and nonhuman animals within societies and cross-culturally.
Corequisite(s): COMP 105
Restriction(s):
Can enroll if Class is Freshman
Can enroll if College is Arts, Sciences, and Letters

LIBS 139  Crossing Boundaries  3 Credit Hours
FULL TITLE: Crossing Boundaries: Passing and Social Identity in American History Have you ever thought that life would be easier if you had been born a different person? This course examines the stories of boundary crossers: individuals who acted on that desire and ‘passed’ for a member of a different social group. People who have lived on both sides of a social identity offer a unique opportunity to understand the meaning of race, class, gender, and sexual orientation in American society. Their experiences can help us understand social categories and how they have changed over the course of history. What, for example can a person who lived as both a woman and a man tell us about the significance of gender in our society? (OC)
Restriction(s):
Can enroll if Class is Freshman or Sophomore
LIBS 180  Talk & Text  3 Credit Hours
Full Title: Talk and Text: Language Myths and Language Facts
An overview of fundamental language issues. Commonly-held beliefs about speaking and writing will be critically examined by comparing and contrasting language myths and linguistic theories, placing strong emphasis on practices of researching, writing, and speaking about language issues in an academic setting. Separate modules will deal with the origin and development of language, the importance of language rules and structures, the relationship between language, society and gender issues, and mental aspects of language, including bilingualism. (OC)
Restriction(s):
Can enroll if Class is Freshman

LIBS 191  Returning Adult Learners  1 Credit Hour
LIBS 191 is designed to provide returning adult students with the support, skills, and knowledge needed for academic success at the University of Michigan - Dearborn. Students will discover productive learning strategies, build a supportive network of peers, and explore campus resources by examining, through selected readings and assignments, the broader social, cultural, and individual context of being a non-traditional student on a university campus.

LIBS 200  Computer Literacy  1 to 3 Credit Hours
An introductory course in computing for students who do not intend to become computer programmers or designers. The course explores the nature and origins of computing, and examines its uses and limitations in such applications as teaching/learning, buying/selling and information storage/retrieval. The social implications of the computer revolution will be examined and limited programming will be provided with a small, home computer.

LIBS 275  GIEU: Global Intercultural Exp  3 Credit Hours
Global Intercultural Experience for Undergraduates. LIBS 275 is an interdisciplinary experiential introduction to intercultural learning that prepares diverse undergraduate students from various colleges for field experience interactions, and then helps students bring these experiences back to campus in socially and academically productive ways. It is a series of concentrated seminars of orientation, debriefing, and symposium.
Restriction(s):
Cannot enroll if Class is Specialist or Graduate or Doctorate

LIBS 276  GIEU: Leadership  2 Credit Hours
The Global Intercultural Experience for Graduates (GIEU) Leadership Seminar provides leadership training and experience for exceptional students nominated by faculty from those having completed LIBS 275. In addition to participating in a group seminar, each student will be matched with a faculty mentor in preparing for and leading an upcoming GIEU field experience. These peer leaders will have two primary responsibilities: to help in team formation for the new field site; and to assist faculty members on site with logistics, peer communication, and organization. In addition to their practical experience, each participant will complete reflection exercises and essays.
Restriction(s):
Cannot enroll if Class is Specialist or Graduate or Doctorate

LIBS 290  Topics in Liberal Studies  1 to 3 Credit Hours
A lower-level topics course. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

LIBS 300  Library Research Skills  1 Credit Hour
This course is designed to teach and strengthen the information competency and research skills of college students. This course provides students with life-long learning skills needed to access, evaluate, and utilize information resources, including full-text article databases, internet resources, online catalogs, as well as materials traditionally located in the library.

LIBS 330  Innovators-Project Development  3 Credit Hours
This course is an introduction to the theory and practice of the Honors Transfer Innovators (HTI) Experience. HTI is a project based, collaborative learning community with a focus on self-transformation, creativity, diversity, leadership, and reflection. We explore these themes through readings, small group projects, and mentorship from senior students in the 400 level course, as well as the use of educational technology, and community engagement. This course is only open to students admitted into the HTI learning community.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Attribute is Honors Transfer Innovators

LIBS 364  The European Union  3 Credit Hours
This course examines the history and politics of European integration, notably institutional development, decision-making procedures and dynamics, and policy formulation in the European Union. The course will concentrate on the intergovernmental conferences and treaty reform, the relationship between European politics at the subnational, national and supranational levels; the role of national, institutional, and non-state actors; problems of accountability and legitimacy; the economic and monetary union; and enlargement. The course will also address questions of globalization and technology, and the American perception of the EU. (OC)
Prerequisite(s): COMP 105
Restriction(s):
Can enroll if Level is Undergraduate

LIBS 395  Co-op Education Work Assignment  1 to 3 Credit Hours
Student is eligible to compete for job openings listed with the co-op office by employers. After application and interview, employers hire the student best suited to employer's job needs. Study/career-related paid positions are either alternating full-time or parallel part-time. Under a cooperative work agreement the student submits academic learning objectives to the co-op faculty advisor, who, upon review of employer evaluation, determines credit for co-op learning experience. Students must fulfill the seminar and study term requirements of the program.

LIBS 396  Adv Co-op Work Assignment  1 to 3 Credit Hours
Students who have completed two terms of LIBS 395 may move on to LIBS 396, which offers advanced training in career-related topics, especially leadership. In addition to fulfilling the work-site terms of the placement, students are required to submit leadership goals as part of their Learning objectives and leadership assessment as part of their end of term evaluation. Oral report on how leaderships objectives fared in the workplace will be presented to members of the seminar, LIBS 300. LIBS 395 is a prerequisite for LIBS 396.
Prerequisite(s): LIBS 395
LIBS 395  Adv Co-op Work Assignment II  1 to 3 Credit Hours
Students who have completed two terms of LIBS 395 and two terms of LIBS 396 may move on to LIBS 397, in which students assess their placement in the light of research on the topic of good work. In addition to fulfilling the work-site terms of the placement, students are required to conduct informational interviews of professionals in their field, including people on the work site, with special focus on that aspect of professionalism where excellence and ethics intersect. The results of interviews will be reported in the end-of-term placement evaluation.
LIBS 395 and LIBS 396 are prerequisites or LIBS 397.
Prerequisite(s): LIBS 395 and LIBS 396

LIBS 430  Innovators Capstone  3 Credit Hours
LIBS 430 is a three-credit hour practicum based course that serves as the capstone for the Honors Transfer Innovators (HTI) Experience. Students will engage in theoretical, collaborative, and project based learning experiences focused on peer mentoring, project completion, and creative leadership. Based on these experiences, students will identify best practices that are applicable to mentoring HTI 300 level students and develop a set of principles to guide their mentoring relationship. Students in this course will mentor HTI 300 students who will be crafting their project proposals. In addition students in this course will complete an M-Portfolio documenting their HTI experience.
Prerequisite(s): LIBS 330
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Attribute is Honors Transfer Innovators

LIBS 395 and LIBS 396

LIBS 442  Medical Ethics  3 Credit Hours
An examination of moral issues in medicine. Among the problems to be considered are truth-telling and paternalism in the doctor-patient relationship, psychsurgery and behavior control, death and euthanasia, the allocation of scarce resources, and genetic counseling and control. Specific attention will be given to ethical theories and to philosophical concepts such as rights, autonomy, and justice.
Prerequisite(s): PHIL 240

LIBS 464  Literature and Science Studies  3 Credit Hours
An introduction to the humanistic study of science using works of literature and the techniques of literary, historical, sociological, philosophical, cultural, feminist, and rhetorical analysis. Students cannot receive credit for both LIBS 464 and LIBS 564. Student seeking graduate credit should elect LIBS 564.
Restriction(s):
Can enroll if Class is Senior

LIBS 466  Investigating Academic Literacy  3 Credit Hours
Intensive investigation of, and practice with, writing and research skills required for graduate-level work. Through regular assignments, guided reading of a variety of texts, and intensive work with instructor/s and one another, students will explore what it means to produce academic discourse, learn its conventions, and develop skills in written analysis. Students cannot receive credit for both LIBS 466 and LIBS 566. Students seeking graduate credit should elect LIBS 566.
Restriction(s):
Can enroll if Class is Senior

LIBS 467  Self in Philosophy/Literature  3 Credit Hours
This course will utilize both philosophical and literary texts to examine the nature of self. We will explore the self’s capacity for self-knowledge and self-deception, its relation to others, its connection to gender, its existence as body, and finally its desire to disown and flee itself. The philosophical texts will provide theoretical structures within which to both experience and discuss the literary texts. Students cannot receive credit for both LIBS 467 and LIBS 567. Students seeking graduate credit should elect LIBS 567.
Restriction(s):
Can enroll if Class is Senior

LIBS 471  Science & Phil of Emotions  3 Credit Hours
This course will examine how philosophers, scientists, and psychologists in the past analyzed the emotions in order to set the stage for an examination of more recent work on the emotions currently being produced in philosophy, psychology, and the neurosciences. We will use these analyses to explore the following topics: the mental and physical components of emotions, the relation between reason and emotion, and the understanding of the emotions of others. Students cannot receive credit for both LIBS 471 and LIBS 571. Students seeking graduate credit should elect LIBS 571.
Restriction(s):
Can enroll if Class is Senior

LIBS 480  Gender, Culture, and Identity  3 Credit Hours
This is a course about how scholars analyze women, gender, and feminist theories. It introduces students to key questions about gender and the principal methods for studying them. It will serve as a forum for building and testing theories on the totality of women’s experience. Student cannot receive credit for both LIBS 480 and LIBS 580. Students seeking graduate credit should elect LIBS 580.
Restriction(s):
Can enroll if Class is Senior

LIBS 484  Env St:Concepts and Philosophy  3 Credit Hours
An extensive and intensive analysis of the roots of environmental studies. Environmental studies becomes meta-disciplinary as it makes connections between the traditional disciplines in the natural sciences, social sciences, humanities, and technological sciences when dealing with current environmental issues. The students will examine and discuss the philosophical, scientific, social, and religious basis of the environmental movements through classical and contemporary readings. Possible topics will include: views of nature, sustainability, carrying capacity, management of commons, the environment of cities, and developing a sense of place. Students cannot receive credit for both LIBS 484 and LIBS 584. Students seeking graduate credit should elect LIBS 584.
Restriction(s):
Can enroll if Class is Senior

LIBS 485  Watershed Analysis  3 Credit Hours
An interdisciplinary study of watersheds, the most commonly used bioregional unit. The course will integrate the analysis of many factors which contribute to the character of watersheds, including bedrock and surficial geology, surface and groundwater hydrology, social history, land use history, water quality analysis, biological diversity, laws and regulations, management models, drinking water and wastewater, best management practices, and educational programs. The Rouge River Watershed will serve as the primary case study. Students cannot receive credit for both LIBS 485 and LIBS 585. Student seeking graduate credit should elect LIBS 585.
Restriction(s):
Can enroll if Class is Senior
LIBS 487 Women and Public Spaces 3 Credit Hours
Despite old and persistent myths of a woman’s place being in the home, women in America have consistently maintained a presence in public spaces. Their participation, however, was not unfettered. Laws, social mores, familial and religious restraints, etiquette, the threat of violence, lack of funds, and other factors influenced and restricted women’s behavior when in public and structured society’s reactions to their presence. This course will consider the development of these codes of behavior (formal and informal), how women of different ethnicities, races, sexual orientations, and classes experienced their effects, and the ways in which women sought to temper and undermine the system, particularly in the twentieth century. The course will provide an interdisciplinary approach to historic, social, physical, economic, and cultural geographies through which women have traveled. Students cannot receive credit for both LIBS 487 and LIBS 587. Student seeking graduate credit should elect LIBS 587.

Restriction(s):
Can enroll if Class is Senior

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Library Science (LIBR)

LIBR 465 Literature for Children 3 Credit Hours
The evaluation of books for children aged three to twelve. Fiction, folklore, poetry, illustration, and informational books are considered with emphasis on the development of standards for selecting materials with reference to the interests, needs, and abilities of children and the enrichment of the school curriculum. Designed for librarians, supervisors, and teachers in the elementary school. Students will also carry out assignments with children and therefore must complete required clearance forms prior to completion of academic service learning projects. For more information access the Field Placement Office website at https://umdearborn.edu/cehs/cehs_fpo/.

Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior

LIBR 470 Literature for Young People 3 Credit Hours
Surveys and develops criteria for appropriate literature for young people in junior high school. Fiction, non-fiction, folklore, poetry and fantasy are considered with reference to the interests, needs and abilities of adolescents. Designed for librarians, supervisors, and teachers in the secondary school.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Sophomore or Junior or Senior

LIBR 475 Issues Lit Child/Yng People 3 Credit Hours
This course is designed to heighten the awareness and sensitivity of teachers to the treatment of issues in modern and traditional literature for elementary and middle school children. Among these issues will be justice, ethics, abuse, conformity, aging, death, sibling problems, alienation, friendship, prejudice, gender, and other areas of concern. Techniques and activities for fostering discourse and open inquiry in the classroom, relative to the literature, will be explored and presented. (OC).

Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Education, Health, and Human Services

Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Linguistics (LING)

LING 180 Text & Talk 3 Credit Hours
An overview of fundamental language issues about which non-specialists are generally curious but often misinformed. Separate modules will deal with the origin and development of language, the importance of linguistic structures, the relationship between language and society with a focus on gender issues, and mental aspects of language, including bilingualism. Commonly-held misconceptions about speaking and writing will be critically examined by comparing and contrasting language myths and facts, placing strong emphasis on practices of reasearching, writing, and speaking about language issues in an academic setting. (OC)

LING 280 Introduction to Linguistics 3 Credit Hours
The basic concepts, scope, and methodology of the descriptive and historical study of the English language. (F,W,S)

LING 281 Language, Thought, and Culture 3 Credit Hours
A practical application of linguistic principles to many aspects of human behavior. Some of the topics covered will be language and thought, first and second language acquisition, social dialects, and reading. (OC).

LING 375 Psychology of Language 3 Credit Hours
The nature of human language as seen from the perspective of experimental psychology. The course introduces the student to current developments in linguistic theory. (OC).

Prerequisite(s): PSYC 171 or PSYC 170 or LING 280 or PSYC 101

LING 383 American English 2 to 3 Credit Hours
The development of American English and its dialects interpreted in the light of cultural history and processes of language change.

Prerequisite(s): LING 280 or LING 281
LING 385  Language and Gender  3 Credit Hours
Examines theories of differences between male and female speakers of English, focusing on phonological, syntactic, semantic, stylistic, and conversational features, with analyses of differences in speaking strategies and agendas of male and female speakers, as well as split-gender language situations in the workplace, home, and social settings.
Prerequisite(s): LING 280 or LING 281

LING 388  Language Pathologies  3 Credit Hours
A survey of language pathologies, spoken and written; production and reception; primary and secondary (those arising from other medical dysfunctions: stroke, muscular dystrophy, multiple sclerosis, cerebral palsy, cleft, deafness). Attention to pathologies related to psychoses and neurological disorders. (AY).
Prerequisite(s): LING 280 or LING 281

LING 390  Topics in Linguistics  3 Credit Hours
Examination of problems and issues in selected areas of linguistics. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

LING 391  Independent Study  3 Credit Hours
****NO DESCRIPTION AVAILABLE****

LING 399  Independent Studies in Ling  1 to 6 Credit Hours
Readings or analytical assignments in linguistics in accordance with the needs and interests of those enrolled and agreed upon by the student and advising instructor. May be repeated for a maximum of 6 credit hours. (F,W).

LING 422  Language and Popular Culture  3 Credit Hours
This course provides an overview of popular culture theories and communication models along with research methods. It offers an accessible, in-depth presentation of popular culture including music, film, television, magazines, comics, animation, and advertising in the US and the beyond. The main focus of the course is to highlight the functions of language, particularly, dialects, accents, and foreign languages, in producing and consuming local and global pop culture texts.
Restriction(s):
Can enroll if Level is Undergraduate

LING 425  Language and Society  3 Credit Hours
An examination of the social functions of speech through readings and exercises, emphasizing schools and other applied settings. Topics include ethnic and social class dialects, codeswitching, and the organization of conversation. Students cannot receive credit for both LING 425 and LING 525. (AY).
Prerequisite(s): ANTH 101 or LING 280 or LING 281

LING 461  Modern English Grammar  3 Credit Hours
The morphological and syntactic analysis of the structure of present day English considered in the light of modern linguistic science. Students cannot receive credit for both LING 461 and LING 561.
Prerequisite(s): LING 480 LING 280 or LING 281

LING 464  Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners and related developments in linguistics, philosophy, psychology, communication, and composition and rhetoric. Students may not receive credit for both LING 464 and LING 564.
Prerequisite(s): COMM 2015 or COMM 220 or COMM 250 or COMM 260 or COMM 280 or COMM 290 or ENGL 223 or ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 248 or ENGL 250
Restriction(s):
Cannot enroll if Class is Graduate

LING 465  Discourse Analysis  3 Credit Hours
An examination of the syntactic and semantic devices and structures underlying communication in written texts and oral interaction. Material to be analyzed will vary from term to term (technical reports, scholarly articles, newspaper stories) but examples will be drawn primarily from the written language. Students cannot receive credit for both LING 465 and LING 565. (OC).
Prerequisite(s): LING 280 or LING 281
Restriction(s):
Cannot enroll if Class is Graduate

LING 474  Second Lang Acquisition: Engl  3 Credit Hours
A survey of fundamental concepts and major concerns in the study of English as a Second Language (ESL). The course examines a variety of psycholinguistic and sociolinguistic issues related to second language acquisition (SLA), ranging from theoretical to pedagogical. A primary focus is on developmental patterns and cognitive processes of SLA and individual variation in ESL speakers in terms of their social motivations and learning strategies. Implications for practical concerns such as the ESL teaching profession, instructional materials and curriculum development will be addressed where relevant.
Prerequisite(s): LING 280 or LING 281 or LING 480

LING 475  Lang Diversity: Arab Amer Comm  3 Credit Hours
The study of the development, features, and significance of varieties of English in southeastern Michigan, with a focus on the Arab American community. A range of sociolinguistic approaches are explored and applied to the subject matter. Topics to be addressed include code switching, language shift and maintenance, style shifting, and the role of language in identity formation. Students cannot receive credit for both LING 475 and LING 575.
Prerequisite(s): LING 280 or LING 281 or LING 480

LING 476  Sociolinguistics  3 Credit Hours
An examination of sociolinguistic approaches to the issue of variation in language. Areas to be considered include ways of defining and constructing language, different types of language varieties, how variation is structured in language, the role of sociolinguistic variation in linguistic change, and the significance of linguistic acts of identity. (YR)
Prerequisite(s): LING 280 or LING 480
Restriction(s):
Cannot enroll if Class is Graduate

LING 477  African American English  3 Credit Hours
An examination of the structure, history and use of African-American English. Topics will include the pronunciation, grammar and vocabulary of African-American English, theories of origin, linguistic repertoire and code-switching in African-American communities, the Ebonics controversy, and the role of this variety in education and identity formation. Students cannot receive credit for both LING 477 and LING 577.
Prerequisite(s): LING 280 or LING 281 or LING 480
Restriction(s):
Cannot enroll if Level is Undergraduate

LING 575  Lang Diversity: Arab Amer Comm  3 Credit Hours
The study of the development, features, and significance of varieties of English in southeastern Michigan, with a focus on the Arab American community. A range of sociolinguistic approaches are explored and applied to the subject matter. Topics to be addressed include code switching, language shift and maintenance, style shifting, and the role of language in identity formation. Students cannot receive credit for both LING 475 and LING 575.
Prerequisite(s): LING 280 or LING 281 or LING 480

LING 565  Discourse Analysis  3 Credit Hours
An examination of the syntactic and semantic devices and structures underlying communication in written texts and oral interaction. Material to be analyzed will vary from term to term (technical reports, scholarly articles, newspaper stories) but examples will be drawn primarily from the written language. Students cannot receive credit for both LING 465 and LING 565. (OC).
Prerequisite(s): LING 280 or LING 281
Restriction(s):
Cannot enroll if Class is Graduate

LING 474  Second Lang Acquisition: Engl  3 Credit Hours
A survey of fundamental concepts and major concerns in the study of English as a Second Language (ESL). The course examines a variety of psycholinguistic and sociolinguistic issues related to second language acquisition (SLA), ranging from theoretical to pedagogical. A primary focus is on developmental patterns and cognitive processes of SLA and individual variation in ESL speakers in terms of their social motivations and learning strategies. Implications for practical concerns such as the ESL teaching profession, instructional materials and curriculum development will be addressed where relevant.
Prerequisite(s): LING 280 or LING 281 or LING 480

LING 475  Lang Diversity: Arab Amer Comm  3 Credit Hours
The study of the development, features, and significance of varieties of English in southeastern Michigan, with a focus on the Arab American community. A range of sociolinguistic approaches are explored and applied to the subject matter. Topics to be addressed include code switching, language shift and maintenance, style shifting, and the role of language in identity formation. Students cannot receive credit for both LING 475 and LING 575.
Prerequisite(s): LING 280 or LING 281 or LING 480

LING 476  Sociolinguistics  3 Credit Hours
An examination of sociolinguistic approaches to the issue of variation in language. Areas to be considered include ways of defining and constructing language, different types of language varieties, how variation is structured in language, the role of sociolinguistic variation in linguistic change, and the significance of linguistic acts of identity. (YR)
Prerequisite(s): LING 280 or LING 480
Restriction(s):
Cannot enroll if Class is Graduate

LING 477  African American English  3 Credit Hours
An examination of the structure, history and use of African-American English. Topics will include the pronunciation, grammar and vocabulary of African-American English, theories of origin, linguistic repertoire and code-switching in African-American communities, the Ebonics controversy, and the role of this variety in education and identity formation. Students cannot receive credit for both LING 477 and LING 577.
Prerequisite(s): LING 280 or LING 281 or LING 480
Restriction(s):
Cannot enroll if Level is Undergraduate
LING 480  Concepts in Linguistics  3 Credit Hours
An examination of foundational concepts in linguistic and sociolinguistic theory, which explores the intellectual and philosophical problems raised by these concepts. Issues covered include the metalinguistic nature of language studies, the relation of language to the communication systems of other species, the physiological basis of language, language variation, language function and instrumentality, and innate versus learned behavior. Designed for students pursuing the Endorsement in ESL Teaching. (YR)
Restriction(s):
Cannot enroll if Class is Graduate

LING 482  History of the English Lang  3 Credit Hours
A thorough grounding in the history and structure of the English language. At issue are the linguistic and ideological origins of the concept of Standard English, and the strengths and limitations of different methods of analyzing the history of the language. The course will emphasize sound change, grammatical change, and their sociolinguistic context. (YR)
Prerequisite(s): LING 280 or LING 480
Restriction(s):
Can enroll if Level is Undergraduate

LING 484  World Englishes  3 Credit Hours
A study of the origin and significance of different forms of English throughout the world. Contact with other languages, pidginization, creolization, standardization, and the formation of the three circles of English are examined. (YR)
Prerequisite(s): LING 280 or LING 480
Restriction(s):
Cannot enroll if Class is Graduate

LING 490  Topics in Linguistics  3 Credit Hours
Examination of problems and issues in selected areas of linguistics. Titles as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

LING 499  Advanced Independent Studies  1 to 3 Credit Hours
Advanced research project in accordance with the needs and interests of those enrolled and agreed upon by the student and advising instructor.
Prerequisite(s): LING 280 or LING 480

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Marketing (MKT)

MKT 352  Mkts Principles and Policies  3 Credit Hours
An introductory course in the marketing activities associated with the free market system. The various components and functions of the marketing activities will be discussed in an integrated framework to provide insight into the role and scope of marketing in the business environment. The components and functions include: product development, pricing, promotion, distribution, consumer behavior and target market analysis.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

MKT 360  Marketing and Society  3 Credit Hours
This course explores the social scientific theories on consumption and consumer culture as well as ethical/public policy issues related to consumption and marketing. Topics will include: economic and sociological perspectives on consumer culture; the origins of consumer tastes, trends, and fashions; the psychology of happiness and how personal well-being is influenced by wealth, consumption, and materialism; and public policy concerns related to marketing and advertising. (YR).
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

MKT 363  Digital Consumer Srch&Mktg  3 Credit Hours
This course is dedicated exclusively to digital marketing issues. Topics include: keyword research; search engine optimization which covers (a) how to design websites and other digital assets so they are highly ranked by search engines, and (b) "off site optimization" which is establishing linking partners; and Pay per click advertising.
Prerequisite(s): MKT 352

MKT 382  Understanding Customers  3 Credit Hours
Students in this course will improve their ability to understand what customers want right now, what they are going to want in the future, and how to adjust the marketing mix to build lasting relationships with consumers. To do this, students will learn more advanced models of market segmentation, targeting, and product positioning. This course utilizes concepts developed in the behavioral sciences (economics, marketing, psychology, sociology, and anthropology) and qualitative research techniques to understand and predict consumer behavior, and enhance students' ability to communicate effectively with target market segments.
Prerequisite(s): MKT 352

MKT 402  Marketing Management  3 Credit Hours
A case-oriented course in which the understanding and insights of the various components and functions of marketing learned in MKT 352 are applied to practical situations. Marketing decisions will be evaluated and decided for a series of real-life cases in a number of areas including: general marketing, pricing, promotion, distribution and market research.
Prerequisite(s): MKT 352

MKT 434  Sales Mgmt & Personal Selling  3 Credit Hours
The purpose of this course is to provide a general understanding of the practice of sales management. The course is designed to provide a basic framework of what sales managers actually do and how they solve problems they may encounter. Team presentations, case analyses and class discussion are used throughout the course to describe and explain the skills required of sales managers to achieve their objectives.
Prerequisite(s): MKT 352

MKT 436  Business to Business Mktg  3 Credit Hours
To develop an understanding of that area of marketing that addresses the needs of the organizational customer in industry, government and institutions. The special challenges of the industrial market that confront the marketing manager and sales personnel are discussed in the course. Topics include: assessing industrial marketing opportunities, the organizational buying process, formulating industrial marketing strategy and evaluating industrial marketing strategy and performance.
Prerequisite(s): MKT 352
**MKT 454   Marketing Research  3 Credit Hours**
To introduce marketing research concepts and techniques for collection, analysis and interpretation of data for marketing decisions. Topics include: problem definition, research design, questionnaire construction, sampling, attitude scaling, statistical analysis, presentation and evaluation of research findings. A field research project may be included.
**Prerequisite(s):** DS 300 and MKT 352

**MKT 455   E-tailing and Retailing   3 Credit Hours**
This course introduces students to significant issues and analysis frameworks of 21st century retailing strategy and management, including retailing over the Internet, or “E-tailing.” E-tailing and retailers are challenged to enhance customer experience, customer service and customer satisfaction. The students will learn the complexities and nuances of shopper behavior, shopper demographics, and how shopper decisions are influenced by store design, store environment, store atmosphere and merchandising, in brick-and-mortar and Internet stores. The course will elevate and enhance students’ readiness and advancement in retail, brand management and marketing careers.
**Prerequisite(s):** MKT 352

**MKT 456   Advg and Sales Promotion   3 Credit Hours**
A survey of the principles of advertising and sales promotion, which examines problems related to advertising management. Topics include: the scope of the advertising business, determination of objectives, strategy formulation, creating effective advertising programs, media planning with emphasis on integrating new media into the mix, the role of dealers in promotion, establishing the advertising budget, advertising research and the social and legal aspects of advertising in society.
**Prerequisite(s):** MKT 352

**MKT 457   Glbl Mrkting&Consumr Cultre   3 Credit Hours**
To provide students with an understanding of the components of marketing in the international environment. A working knowledge of the environment and the complex inter-relationship between different components of marketing will be developed. The focus is on evolving a logical and integrated framework for international marketing decisions.
**Prerequisite(s):** MKT 352 or (ECON 201 and (ECON 2001 and ECON 202) or MKT 402)
**Restriction(s):**
Can enroll if Class is Sophomore or Junior or Senior

**MKT 458   Advertising   3 Credit Hours**
This course covers the principles of integrated brand advertising and promotion and digital strategies. Incorporated into this course are needed skills by both traditional and online marketing majors. Students will learn to allocate resources against a wide variety of communications and promotions vehicles, so as to effectively implement a brand strategy. We examine the current state of the business and problems related to advertising and promotion in the 21st Century. Topics include: determination of promotion objectives, strategy formulation, creating effective advertising programs, media planning, roles of client and agency, establishing the advertising budget, advertising research and the social and legal aspects of integrated brand promotion.
**Prerequisite(s):** MKT 352

**MKT 460   Digital Comm Strategy   3 Credit Hours**
This course is an in depth survey of the principles of digital advertising/communication and promotion. We examine the issues, particularly what is a brand today, the current state of the business and problems related to advertising and management in the 21st Century. Topics include the scope of the digital advertising business, determination of objectives, strategy formulation, creating effective digital advertising programs, media planning, roles of client and agency, establishing the advertising budget, advertising research and the social and legal aspects. (YR)
**Prerequisite(s):** MKT 352 and MKT 458

**MKT 463   Digital Analytics&Content Mkgt   3 Credit Hours**
This course is dedicated exclusively to digital marketing issues. Topics include: using digital analytics platforms to (a) understand the flow of traffic to your website and other digital assets, and (b) conversion design, i.e. creating websites and other digital assets that both attract visitors and effectively monetize those visits and working with web programmers, i.e. this topic provides students with basic vocabulary and concepts needed to work effectively with technical experts.
**Prerequisite(s):** MKT 363

**MKT 471   Entrepreneurial Marketing   3 Credit Hours**
This course applies the marketing mix: product development, pricing, promotion, and distribution to an entrepreneurial enterprise. It will explore marketing-related issues faced by entrepreneurs, such as: new product innovation, development, and testing; promoting the product with scarce resources and gaining market acceptance; raising capital, forecasting market demand, and projecting profit and loss; satisfying the many stakeholders, creating pricing strategies, and cultivating channels of distribution. This course aims to be a multidisciplinary seminar that requires students to explore a potentially profitable business idea and to develop an appropriate business plan. This interactive business laboratory will lead students from the assessment of their business idea to the definition of a detailed market research and the description of a trustable strategic planning. Finally, students will be also required to devise an accurate budget in order to give accounting consistency to the business idea describe in the first part of their business plans. Topics covered include: market analysis, strategic planning and organizational structure, cost definition and analysis, break-even point, budgeting and performance representation.
**Prerequisite(s):** MKT 352

**MKT 488   Seminar: Marketing   1 to 3 Credit Hours**
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members. Permission of School of Management.
**Restriction(s):**
Can enroll if Class is Senior
Can enroll if College is Business

**MKT 488A   Seminar: Marketing   3 Credit Hours**
**TOPIC TITLE:** Introduction to Entrepreneurship. This course describes the entrepreneurial process and explores issues, concepts, and procedures involved in conceiving of, planning for and creating a new business. It emphasizes the need for careful identification of products or services to be offered, specification of the target market(s) and the benefits the enterprise will provide to prospective customers, determining resource requirements, locating resource providers, and developing essential operating and administrative systems. Students will identify an actual business venture they are considering, develop a business plan, and present that plan at the end of the term.
**Restriction(s):**
Can enroll if Class is Junior or Senior or Graduate
MKT 498 Research: Marketing 1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Mathematics (MATH)

MATH 080 Introductory Algebra 3 Credit Hours
The Developmental Mathematics sequence (MATH 080, MATH 090) is offered as a service to students who need extra preparation in mathematics. MATH 080 is for students who are likely to need two semesters of additional preparation in mathematical computation and symbol manipulation, communication, and conceptual understanding. Topics in the two-course sequence include: arithmetic readiness, real numbers and expressions, linear equations and inequalities, lines and functions, systems of linear equations, rational expressions and equations, radicals and complex numbers, quadratic equations and functions, function operations and inverses. Students are required to have Internet-ready devices available for each class meeting. Skill development takes place online and outside scheduled class meetings. The course is graded on an A, B, C, NC (not completed) basis. This course is offered for additive credit.
Prerequisite(s): MPLS with a score of 080

MATH 090 Intermediate Algebra 3 or 6 Credit Hours
The Developmental Mathematics sequence (MATH 080, MATH 090) is offered as a service to students who need extra preparation in mathematics. MATH 090 is for students who (1) have successfully completed MATH 080 or (2) are likely to require only one semester of additional preparation in mathematical computation and symbol manipulation, communication, and conceptual understanding. Topics in the two-course sequence include: arithmetic readiness, real numbers and expressions, linear equations and inequalities, lines and functions, systems of linear equations, rational expressions and equations, radicals and complex numbers, quadratic equations and functions, function operations and inverses. Students are required to have Internet-ready devices available for each class meeting. Skill development takes place online and outside scheduled class meetings. The course is graded on an A, B, C, NC (not completed) basis. This course is offered for additive credit.
Prerequisite(s): MATH 080 or MPLS with a score of 090

MATH 104 College Algebra 4 Credit Hours
Primary purpose of this course is to prepare students for success in MATH 113. Topics include equations and inequalities, linear, quadratic, polynomial, rational, logarithmic and exponential functions along with their graphs; application of these functions, systems of linear inequalities. This course does not cover trigonometric functions and cannot be used as a prerequisite for MATH 115. Students electing this course should have at least taken two years of High School Algebra and one year of High School Geometry or MATH 090. Students cannot receive credit for both MATH 104 and MATH 105. (F, W, S)
Prerequisite(s): MATH 090 or MPLS with a score of 105

MATH 105 Pre-Calculus 4 Credit Hours
Primary purpose of this course is to prepare students for success in Calculus. Topics include equations and inequalities; linear, quadratic, polynomial, rational, logarithmic, exponential and trigonometric functions along with their graphs; application of these functions. Students electing this course should have taken at least two years of High School Algebra and one year of High School Geometry or MATH 090. Students cannot receive credit for both MATH 104 and MATH 105. (F, W, S)
Prerequisite(s): MATH 090 or MPLS with a score of 105

MATH 113 Calc I for Biology & Life Sci 4 Credit Hours
This course develops basic concepts of Calculus from the perspectives of Biology and Life Sciences. Topics include differential and integral calculus of algebraic/logarithmic/exponential functions of one variable, limits, continuity, differentiation, integration, graphing, optimization, related rates and area. Applications include modeling biological problems of medicine, genetics, Biomechanics, ecology, population growth and decay. (This course does not fulfill the calculus requirements for concentration in chemistry, physics, biochemistry, engineering, or mathematics) Student cannot receive credit for both Math 113 and Math 115.
Prerequisite(s): MATH 105 or MPLS with a score of 115 or MATH 104

MATH 114 Calc II for Biology & Life Sci 4 Credit Hours
The topics of this course include advanced methods of integration (integration by parts, partial fraction), modeling with differential equations, some elementary differential equations, matrix algebra, systems of linear equations using matrix method, introduction to probability, conditional probability, discrete and continuous random variables (exponential and normal random variables). Problems in biology, medicine and physiology are used to illustrate how computation and mathematics can improve and enhance the understanding of these problems. Students cannot receive credit for both MATH 114 and MATH 116.
Prerequisite(s): MATH 113 or MATH 115 or MPLS with a score of 116

MATH 115 Calculus I 4 Credit Hours
Functions and their graphs; limits and continuity of functions, differentiation, algebraic and trigonometric functions, applications of derivatives, definite and indefinite integrals, and applications of definite integral. This course includes computer labs. Students cannot receive credit for both MATH 113 and MATH 115. (F, W, S).
Prerequisite(s): MATH 105 or MPLS with a score of 115

MATH 116 Calculus II 4 Credit Hours
Transcendental functions, techniques of integration, improper integral, infinite sequences and series, Taylor's theorem, topics in analytic geometry, polar coordinates, and parametric equations. This course includes computer labs. Students cannot receive credit for both MATH 114 and MATH 116. (F, W, S).
Prerequisite(s): MATH 115 or MPLS with a score of 116
MATH 131  Conceptual Mathematics  4 Credit Hours
The purpose of Math 131 is to develop an awareness of the use of mathematics in the world around us. Students are encouraged to understand organizational tools of mathematics, including set theory and the use of deductive logic. Areas of application may include: consumer Mathematics, Probability, Statistics, social decision making, apportionment, graph theory, and mathematical modeling. Students intending to elect this course should have taken the equivalent of one year of high school algebra and one year of high school geometry. This course is not open to mathematics concentrators. (F,W,S).

MATH 205  Calc III for Engin Students  3 Credit Hours
Vectors in the plane and space, topics from multivariable calculus including partial differentiation and multiple integration, with an emphasis on applications, and line integrals and Green's theorem. This course includes computer labs. Students cannot receive credit for both MATH 205 and MATH 215. (F,W,S).
Prerequisite(s): MATH 116 or MPLS with a score of 215

MATH 215  Calculus III  4 Credit Hours
Vectors in the plane and space, vector-valued functions and curves, functions of several variables including limits, continuity, partial differentiation and the chain rule, multiple integrals and coordinate transformations, integration in vector fields, and Green's and Stokes' theorems. This course includes computer labs. Students cannot receive credit for both MATH 205 and MATH 215. (F,W).
Prerequisite(s): MATH 116 or MPLS with a score of 215

MATH 216  Intro to Diff Equations  3 Credit Hours
Prerequisite(s): MATH 116

MATH 217  Intro to Matrix Algebra  2 Credit Hours
Systems of equations, matrices, determinants, the n-dimensional real vector spaces, orthonormal basis, linear transformations, and eigenvalues and eigenvectors. Students cannot receive credit for both MATH 217 and MATH 227. (F,W,S).
Prerequisite(s): MATH 114 or MATH 116 or MPLS with a score of 215

MATH 227  Introduction to Linear Algebra  3 Credit Hours
An introduction to the theory and methods of linear algebra with matrices. Topics include: systems of linear equations, algebra of matrices, matrix factorizations, vector spaces, linear transformations, eigenvalues and eigenvectors, science and engineering applications, and computational methods. Students cannot receive credit for both MATH 227 and MATH 217. (F,W,S).
Prerequisite(s): MATH 116 or MPLS with a score of 215

MATH 228  Diff Eqns with Linear Algebra  4 Credit Hours
Full Title: Differential Equations with Linear Algebra This course provides an introduction to ordinary differential equations. Emphasis is placed on the development of abstract concepts and applications for first-order and linear higher-order differential equations, systems of differential equations, introductory numerical methods, matrix algebra, and Laplace transform techniques. Students cannot receive credits for both MATH 228 and MATH 216 and MATH 217 (F,W,S).
Prerequisite(s): MATH 215 or MATH 205

MATH 276  Discrete Math Meth Comprrr Engr  4 Credit Hours
An introduction to fundamental concepts of discrete mathematics for computer engineering. Topics will be chosen from: set theory, partially ordered sets, lattices, Boolean algebra, semi-groups, rings, graphical representation of algebraic systems, graphs and directed graphs. Applications in various areas of computer engineering will be discussed. (F,W,S).
Prerequisite(s): MATH 116 or MPLS with a score of 215

MATH 297  The Nature of Mathematics  3 Credit Hours
Mathematics will be presented in a way so that Honors Program students (including nonscience majors) can learn what makes mathematics a fascinating field of study rather than a collection of dry formulas. A few "Great Theorems" will be studied in their historical context, interconnections between mathematics and science will be studied, and some famous personalities will be presented. Open only to students in the CASL Honors Program.

MATH 300  Math Lang Proof & Struct  3 Credit Hours
A required course for students completing a Mathematics concentration, this course is also a prerequisite for many upper-level Mathematics courses. The course focuses on developing the following: an understanding of, and facility with, the logic and syntax of mathematical statements; and ability to recognize and propose appropriate strategies and outlines for proving given statements; facility in writing mathematical proofs; a knowledge base/toolbox of foundational material including basic concepts and terminology related to naive set theory.
Prerequisite(s): MATH 217 or MATH 227

MATH 315  Applied Combinatorics  3 Credit Hours
An introduction to methods and applications of enumerative and configural combinatorics. Students study several elegant and useful techniques for counting and/or generating the elements in large and unwieldy finite sets. Students will also study topics in graph theory that are applicable to real world problems. Topics include basic counting principles, the principle of inclusion-exclusion, generating functions and recurrence relations. Topics from graph theory include graph models, paths, circuits, cycles, connectedness; additional topics include the theory and applications of planarity, coloring, directed graphs, and networks and network flows.
Prerequisite(s): (MATH 200 and (MATH 227 or MATH 300) or MATH 217)

MATH 325  Probability  3 Credit Hours
Brief overview of summary and display of data, probability concepts, discrete and continuous random variables and associated probability models, expectation, independent random variables, probability generating functions and moment generating functions, sampling distributions, the central limit theorem, the t-distribution, properties of estimators, and interval estimation. Previously taught as Mathematical Statistics I. (F).
Prerequisite(s): MATH 114 or MATH 116

MATH 331  Survey of Geometry  3 Credit Hours
A development of Euclidean geometry as a formal axiom system and an introduction to non-Euclidean geometries and to Transformational Geometry. Geometric models and the history of geometry are stressed. Development of students' geometric intuition as well as their ability to work in a formal axiomatic system are emphasized. (F).
Prerequisite(s): MATH 116 and (MATH 200 or MATH 300)
MATH 372  Computing with Mathematica  3 Credit Hours
The course explores a variety of topics from different areas of undergraduate mathematics including calculus, matrix algebra, number theory, geometry, and discrete mathematics. Students learn to design customized Mathematica functions to solve specific problems in these areas using the symbolic, computational, graphics and programming tools provided within Mathematica. (AY,W).
Prerequisite(s): MATH 217 or MATH 227

MATH 385  Math for Elem Teachers I  3 Credit Hours
The purpose of this course and the Math 386 and Math 387 courses is to provide future teachers with foundational knowledge of mathematics they will teach. An inquiry approach is emphasized involving problem solving, problem posing, pattern seeking, reasoning, justification, representations, and communications. Topics in Math 385 include number theory, meaning of operations, the reasoning behind procedures, and the rational number system, including fractions and decimals. (F,W)
Restriction(s):
Can enroll if College is Education, Health, and Human Services

MATH 386  Math for Elem Teachers II  3 Credit Hours
The purpose of this course and the Math 385 and Math 387 courses is to provide future teachers with foundational knowledge of mathematics they will teach. An inquiry approach is emphasized involving problem solving, problem posing, pattern seeking, reasoning, justification, representations, and communications. Topics in Math 386 include number theory, proportional reasoning, the geometry of two-dimensional shape and measurement, integers, and the real number system. (F,W)
Prerequisite(s): MATH 385
Restriction(s):
Can enroll if College is Education, Health, and Human Services

MATH 387  Math for Elem Teachers III  3 Credit Hours
The purpose of this course and the Math 385 and Math 386 courses is to provide future teachers with foundational knowledge of mathematics they will teach. An inquiry approach is emphasized involving problem solving, problem posing, pattern seeking, reasoning, justification, representations, and communications. Topics in Math 387 include algebraic reasoning, model building, tools provided within Mathematica. (AY,W).
Prerequisite(s): MATH 217 or MATH 227 or MATH 276

MATH 390A  Topics in Mathematics  3 Credit Hours
TOPIC TITLE: Mathematics for Middle School and High School Teachers. Students involved in this topics course will be engaged in activities which deepen their understanding of middle school and high school mathematics and the teaching of these topics to students from underrepresented groups in urban schools. These activities will include presentations by outside speakers, reading of professional journals, student and teacher presentations, selecting units from reform curricula and deepening their understanding of the mathematics involved inpreparation to teach lessons from the unit, and extensive field experiences in high schools and middle schools in Detroit and Dearborn. Activities relating to the project start the second half of the Fall 1999 term with about one-half of the Winter 2000 term MATH 391 course spent in schools teaching mathematics. This course for students involved in an Eisenhower grant which focuses on the recruitment of teachers of mathematics for urban schools.
Restriction(s):
Can enroll if Class is Junior or Senior

MATH 390B  Topics in Mathematics  1 to 3 Credit Hours
TOPIC TITLE: Introduction to Wavelets This course will introduce the students to the theory and the applications of wavelet. Topics will include discrete Fourier analysis, the Fast Fourier Transform, linear transformations, orthogonal decomposition, discrete wavelets analysis, the filter bank, Haar Wavelet family, and applications.

MATH 390C  Topics in Mathematics  3 Credit Hours
TOPIC TITLE: Preparation for Industrial Careers PIC Math prepares mathematical science students for industrial careers by engaging them in research problems that come directly from industry. A strong component of PIC Math involves students working as a group on a semester-long undergraduate research problem from business, industry, or government. Undergraduate research is a high impact teaching and learning practice and has been shown to improve students abilities in Problem solving, Critical thinking, Independent thinking, and Communicating.
Prerequisite(s): MATH 200 or MATH 205 or MATH 215 or MATH 216 or MATH 217 or MATH 227 or MATH 276

MATH 391  Topics in Mathematics Education  1 to 3 Credit Hours
A course designed to offer selected topics in mathematics related to K-12 education. The specific topic or topics will be announced together with the prerequisites each term. Course may be repeated for credit when specific topics differ. (OC).

MATH 391A  Topics in Mathematics Education  1 to 3 Credit Hours
TOPIC TITLE: Teaching Mathematics in Urban Middle Schools and High Schools Students involved in this Topics course will be engaged in activities which deepen their understandings of middle school and high school mathematics and the teaching of these topics to students from underrepresented groups in urban schools. These activities will include presentations by outside speakers, reading of professional journals, student and teacher presentations, selecting units from reform curricula and deepening their understanding of the mathematics involved inpreparation to teach lessons from the unit, and extensive field experiences in high schools and middle schools in Detroit and Dearborn. Activities relating to the project start the second half of the Fall 1999 term with about one-half of the Winter 2000 term MATH 391 course spent in schools teaching mathematics. This course is intended for students involved in an Eisenhower grant which focuses on the recruitment of teachers of mathematics for urban schools.

MATH 391B  Topics in Mathematics and Stat  1 to 3 Credit Hours
Topic: Number and Proportional Reasoning in Middle School Mathematics Teachers. This course is designed to deepen the teachers of middle school mathematics understanding of the rational number system and its extension to the real number system in a way that models appropriate pedagogy and raises curriculum issues relevant to teaching number concepts for conceptual understanding and computation fluency. A particular emphasis will be on understanding and applying concepts of proportional reasoning. Topics related to this emphasis include analyzing connections between fraction concepts and ratios and proportions; describing the relationship between proportions and direct and indirect variation; analyzing and applying the connections between proportions and similar figures, probability and sampling, and modeling and solving problems involving rations and proportions. Other major topics incude analyzing number theoretic concepts such as prime numbers and divisibility, and comparing and contrasting models of operations across number systems. Calculator and computer technology will be used as problem solving tools and for support in conceptual understanding. Curriculum resources and materials that support conceptual understanding are considered.

MATH 391C  Topics in Mathematics and Stat  1 to 3 Credit Hours
TOPIC TITLE: Introduction to Wavelets This course will introduce the students to the theory and the applications of wavelet. Topics will include discrete Fourier analysis, the Fast Fourier Transform, linear transformations, orthogonal decomposition, discrete wavelets analysis, the filter bank, Haar Wavelet family, and applications.

MATH 391D  Topics in Mathematics and Stat  3 Credit Hours
TOPIC TITLE: Preparation for Industrial Careers PIC Math prepares mathematical science students for industrial careers by engaging them in research problems that come directly from industry. A strong component of PIC Math involves students working as a group on a semester-long undergraduate research problem from business, industry, or government. Undergraduate research is a high impact teaching and learning practice and has been shown to improve students abilities in Problem solving, Critical thinking, Independent thinking, and Communicating.
Prerequisite(s): MATH 200 or MATH 205 or MATH 215 or MATH 216 or MATH 217 or MATH 227 or MATH 276

MATH 391E  Topics in Mathematics  3 Credit Hours
TOPIC TITLE: Teaching Mathematics in Urban Middle Schools and High Schools Students involved in this Topics course will be engaged in activities which deepen their understandings of middle school and high school mathematics and the teaching of these topics to students from underrepresented groups in urban schools. These activities will include presentations by outside speakers, reading of professional journals, student and teacher presentations, selecting units from reform curricula and deepening their understanding of the mathematics involved inpreparation to teach lessons from the unit, and extensive field experiences in high schools and middle schools in Detroit and Dearborn. Activities relating to the project start the second half of the Fall 1999 term with about one-half of the Winter 2000 term MATH 391 course spent in schools teaching mathematics. This course is intended for students involved in an Eisenhower grant which focuses on the recruitment of teachers of mathematics for urban schools.

MATH 391F  Topics in Mathematics and Stat  1 to 3 Credit Hours
Topic: Number and Proportional Reasoning in Middle School Mathematics Teachers. This course is designed to deepen the teachers of middle school mathematics understanding of the rational number system and its extension to the real number system in a way that models appropriate pedagogy and raises curriculum issues relevant to teaching number concepts for conceptual understanding and computation fluency. A particular emphasis will be on understanding and applying concepts of proportional reasoning. Topics related to this emphasis include analyzing connections between fraction concepts and ratios and proportions; describing the relationship between proportions and direct and indirect variation; analyzing and applying the connections between proportions and similar figures, probability and sampling, and modeling and solving problems involving rations and proportions. Other major topics incude analyzing number theoretic concepts such as prime numbers and divisibility, and comparing and contrasting models of operations across number systems. Calculator and computer technology will be used as problem solving tools and for support in conceptual understanding. Curriculum resources and materials that support conceptual understanding are considered.
MATH 395 Elementary Number Theory 3 Credit Hours
Properties of the integers, the division algorithm, Euclid's algorithm, Fermat's theorems, unique factorization of integers into primes, congruences, arithmetic functions, Diophantine equations, continued fractions, quadratic reciprocity. (W).
Prerequisite(s): MATH 205 or MATH 215

MATH 396 Introduction to Cryptography 3 Credit Hours
This course discusses ways of encrypting information, a function which is vital to economics, defense and the empowerment of society. It is more crucial now than ever before to be able to securely transfer information in this age of electronic communication. After discussing primitive ways of encrypting information and explaining the need for more sophisticated encoding methods, this course explores the mathematics (number theory, finite fields and probability) behind both historic and more recent cryptosystems that have been developed for the secure transmission of data along non secure channels. This course continues with symmetric and public key cryptosystems, elliptic curves, digital signatures, zero knowledge protocols and other more advanced methods. This course does not assume any prior knowledge of number theory or probability. (YR)
Prerequisite(s): MATH 205 or MATH 215 or MATH 216 or MATH 217 or MATH 227 or MATH 276

MATH 399 Independent Studies in Math 1 to 3 Credit Hours
Independent study in mathematics for topics at the junior level. Topics and objectives chosen by agreement between student and instructor.

MATH 4000 Capstone in Mathematics 3 Credit Hours
MATH 4000 is the Capstone course in Mathematics, covering an advanced topic in Mathematics determined by the instructor. Topics may include, but are not limited to, algebraic geometry, functional analysis, functions of several complex variables, and aspects of the study of numerical analysis, partial differential equations, combinatorics, probability, number theory, or topology. Students are expected to complete a research project in the area of the particular topic. (F, W)
Prerequisite(s): MATH 217 or MATH 227
Restriction(s):
Can enroll if Class is Junior or Senior

MATH 404 Dynamical Systems 3 Credit Hours
The aim of this course is to survey the standard types of differential equations. This includes systems of differential equations, and partial differential equations, including for each type, a discussion of the basic theory, examples of applications, and classical techniques of solutions with remarks about their numerical aspects. Also included are autonomous and periodic solutions, phase space, stability, perturbation techniques and Method of Liapunov. Students cannot receive credit for both MATH 404 and MATH 504. (AY).
Prerequisite(s): (MATH 216 or MATH 217 or MATH 228) and MATH 227

MATH 405 Integral Equations 3 Credit Hours
Origin and classification of integral equations, connections with differential equations, integral equations of convolution type, method of successive approximations, single kernels, elements of Hilbert space, linear operators, resolvents, Fredholm theory and Hilbert-Schmidt theory. Students cannot receive credit for both MATH 405 and MATH 505. (OC).
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)

MATH 412 First Course in Modern Algebra 3 Credit Hours
Introduction to groups, subgroups, group homomorphisms, factor groups, simple groups, cyclic groups. Sylow theorems, rings, ideals, integral domains, fields, polynomial rings, Kronecker’s theorem, also properties of the integer, rational, real, and complex numbers. Students cannot receive credit for both MATH 412 and MATH 512. (W).
Prerequisite(s): (MATH 227 or MATH 217 or MATH 228) and (MATH 200 or MATH 300)

MATH 413 Linear Algebra 3 Credit Hours
Vector spaces, linear transformations and matrices, determinants, inner product spaces, bilinear and quadratic forms, Hamilton-Cayley theorem, eigenvalues and eigenvectors, and spectral theorem. Students cannot receive credit for both MATH 413 and MATH 513. (F)
Prerequisite(s): (MATH 200 and MATH 216 or MATH 300) and (MATH 217 or MATH 227)

MATH 420 Stochastic Processes 3 Credit Hours
Review of distribution theory. Introduction to stochastic processes, Markov chains and Markov processes, counting, and Poisson and Gaussian processes. Applications to queuing theory. Students cannot receive credit for both MATH 420 and MATH 520. (AY,W).
Prerequisite(s): MATH 217 or MATH 227

MATH 425 Mathematical Statistics 3 Credit Hours
Interval estimation and pivotal quantities, maximum likelihood estimation, hypothesis tests, linear models and analysis of variance, bivariate normal distribution, regression and correlation analysis, and nonparametric methods. Students cannot receive credit for both MATH 425 and MATH 525. Previously taught as Mathematical Statistics II, (AY,S).
Prerequisite(s): MATH 325

MATH 442 Geometry for Teachers 3 Credit Hours
Properties of two and three-dimensional figures are covered, including congruence, symmetry, transformation, and measurement. Trigonometry from a geometric perspective and the use of trigonometry in problem solving are included. Topics also include coordinate geometry and visualization as well as the nature of axiomatic reasoning and the role it has played in the development of mathematics. An investigative approach involving problem solving, reasoning and proof, connections, and communication will be emphasized. Calculator and computer technology will support the investigation of these topics. Classroom resources and materials are considered. Different levels of geometric thinking will be explored. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Student cannot receive credit for both MATH 442 and MATH 542.
Prerequisite(s): MATH 387
Restriction(s):
Can enroll if College is Education, Health, and Human Services
MATH 443  Algebra for Teachers  3 Credit Hours
Algebraic structure is emphasized, especially as it relates to arithmetic. Emphasis is on the development of algebraic reasoning and generalizations with the appropriate pedagogy. Curriculum issues relevant to teaching algebra for conceptual understanding are included. Major topics include algebraic representations of linear, exponential, power and quadratic patterns, systems of equations, and applications. An investigative approach involving problem solving, reasoning and proof, connections and communications will be emphasized. Classroom resources and materials are considered as well as calculators and computer technology as problem-solving tools to aid in algebraic thinking. No credit for CASL concentration, minor or area of focus. Students cannot receive credit for both MATH 443 and MATH 543. (F, W, S).
Prerequisite(s): MATH 386
Restriction(s):
Can enroll if College is Education, Health, and Human Services

MATH 444  Data Anlys,Prob&Stat for Tchrs  3 Credit Hours
Concepts of probability using both experimental and theoretical models are considered with an emphasis on the use of probability models to describe physical phenomena and to make and interpret predictions. Topics in data analysis and statistics include drawing inferences from visual displays of data, applying techniques of inferential statistics, sampling and simulations to generate solutions to problems, and making appropriate inferences using best fit techniques. Evaluating data and arguments to establish validity, interpreting, calculating and solving problems related to correlation, distributions, percentiles and standard scores are also included. An investigative approach involving problem solving, reasoning and proof, connections, and communication will be emphasized. Calculator and computer technology will support the investigation of these topics. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Student cannot receive credit for both MATH 444 and MATH 544.
Prerequisite(s): MATH 387
Restriction(s):
Can enroll if College is Education, Health, and Human Services

MATH 445  Number & Prop'l Rsng for Tchrs  3 Credit Hours
This course deepens previous work on rational number ideas and applications, and explores the concepts of ratio and proportion. Content includes a variety of situations involving proportions, for example, real-world problems involving ratios, rates, and percents, geometry involving similarity, algebra involving linearity, probability involving assigning a probability to an event, and trigonometry involving slope. Distinguishing proportional situations from those that are not and reasoning proportionally in appropriate situations are emphasized. The course includes problem solving, reasoning and proof, connections, communication, and multiple representations. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students or by permission of instructor. Students cannot receive credit for both MATH 445 and MATH 545. (AY).
Prerequisite(s): MATH 442 and MATH 443

MATH 446  Discrete Math/Modeling for Tch  3 Credit Hours
This course interweaves the ideas of discrete mathematics with the approaches and strategies of mathematical modeling. It gives pre- and inservice teachers opportunities to deepen their understanding and use of mathematical models based on the concepts of discrete mathematics. Topics include recurrence, induction, permutations, combinations, binomial distributions, circuits, critical paths, minimal spanning trees, adjacency matrices, algorithm design and optimization. Systems thinking and multiple representations are emphasized. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Students cannot receive credit for both MATH 446 and 546. (AY).
Prerequisite(s): MATH 442 and MATH 443

MATH 447  Micro in Math for Teachers  2 Credit Hours
Use of the microcomputer in the mathematics classroom with an emphasis on the LOGO programming language. Problem solving, hands-on activities, and a cooperative learning environment are emphasized. Students cannot receive credit for both MATH 447 and MATH 547.
Prerequisite(s): MATH 385

MATH 448  Problem Solving for Teachers  2 Credit Hours
Problem-solving skills important to the mathematics classroom are introduced. Both the development of these skills for those in the course and the implementation of them in the classroom are pursued. Resource materials for the classroom are considered. (F).
Prerequisite(s): MATH 386
Restriction(s):
Can enroll if Level is Rackham or Graduate

MATH 449  Concepts of Calc for Teachers  3 Credit Hours
Concepts of Calculus for Teachers focuses on calculus concepts appropriate for middle school mathematics teachers and teacher-candidates. The course provides a deep understanding of the major concepts of calculus: rates of change, accumulation (net change), area, and limits. Students will experience concrete approaches to the various topics using problem solving, manipulatives and technology as appropriate, with the intent being to help the learners discover how the ideas of calculus are useful in a variety of settings. Visual, numeric and common sense approaches are used. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Students cannot receive credit for both MATH 449 and 549. (AY)
Prerequisite(s): MATH 442 and MATH 443

MATH 451  Advanced Calculus I  3 Credit Hours
Properties of the real number system; point set theory for the real line including the Bolzano-Weierstrass theorem; sequences, functions of one variable: limits and continuity, differentiability, Reimann integrability. Students cannot receive credit for both MATH 451 and MATH 551. (F).
Prerequisite(s): (MATH 300 or MATH 200) and (MATH 216 or MATH 217 or MATH 228) and MATH 227

MATH 452  Advanced Calculus II  3 Credit Hours
Includes the rigorous study of functions of two and more variables, partial differentiation and multiple integration. Special topics include: Taylor Series, Implicit Function Theorem, Weierstrass Approximation Theorem, Arzela-Ascoli Theorem. Students cannot receive credit for both MATH 452 and MATH 552. (AY, W).
Prerequisite(s): MATH 451
MATH 454  Fourier and Boundary 3 Credit Hours
Fourier series and integrals. Their use in solving boundary value problems of mathematical physics by the method of separation of variables. Sturm-Liouville theory and generalized Fourier series, including those involving Bessel functions and Legendre polynomials, with applications. Students cannot receive credit for both MATH 454 and MATH 554. (F).
Prerequisite(s): (MATH 216 or MATH 217 or MATH 228) and MATH 227
MATH 455  Func of a Complex Var with App 3 Credit Hours
Complex number system. Functions of a complex variable, their derivatives and integrals. Taylor and Laurent series expansions. Residue theory and applications, elementary functions, conformal mapping, and applications to physical problems. Students cannot receive credit for both MATH 455 and MATH 555. (W).
Prerequisite(s): (MATH 216 or MATH 217 or MATH 228) and MATH 227
Restriction(s):
Can enroll if Level is Undergraduate
MATH 458  Introduction to Wavelets 3 Credit Hours
This course will introduce the students to theory and application of wavelets using linear algebra. Topics will include the discrete Fourier transform, the fast Fourier transform, linear transformations, orthogonal decomposition, discrete wavelet analysis, the filter bank, Haar Wavelet family, Daubechies's Wavelet family, and applications. Students cannot receive credit for both MATH 458 and MATH 558. (OC)
Prerequisite(s): (MATH 216 or MATH 217 or MATH 228) and MATH 227
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
MATH 462  Mathematical Modeling 3 Credit Hours
The processes of constructing, implementing, and evaluating mathematical models of "real world" phenomena are investigated. Models involving continuous and discrete mathematical constructs are considered. Deterministic and stochastic models are compared. Examples are taken from genetics, epidemiology, queuing theory, and other fields. Students cannot receive credit for both MATH 462 and MATH 562. (F).
Prerequisite(s): (MATH 216 or MATH 217 or MATH 228) and MATH 227
MATH 472  Intro to Numerical Analysis 3 Credit Hours
Solution of linear systems by Gaussian elimination, solution of non-linear equations by iterative methods, numerical solution of ordinary differential equations, data fitting with spline functions, numerical integration, optimization. Students cannot receive credit for both MATH 472 and MATH 572. (F).
Prerequisite(s): MATH 217 or MATH 227
MATH 473  Matrix Computation 3 Credit Hours
A study of the most effective methods for finding the numerical solution of problems which can be expressed in terms of matrices, including simultaneous linear equations, orthogonal projections and least squares, eigenvalues and eigenvectors, positive definite matrices, and difference and differential equations. Students cannot receive credit for both MATH 473 and MATH 573. (AY, W).
Prerequisite(s): MATH 217 or MATH 227
MATH 480  History of Mathematics 3 Credit Hours
A unified view of the rise of mathematics from ancient times to the present, as seen in its conceptual developments and developments, its major themes and its applications (including computers). Students cannot receive credit for both MATH 480 and MATH 580. (OC).
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
MATH 486  Sec School Math for Teachers 3 Credit Hours
Basic concepts, relationships, generalizations, and applications from the secondary school mathematics curriculum are discussed both from an advanced viewpoint and from the standpoint of the learner. Included are the roles of technology, problem solving, and current thinking on the teaching of secondary mathematics topics. Students cannot receive credit for both MATH 486 and MATH 586. (F).
Prerequisite(s): MATH 217 or MATH 227
MATH 492  Introduction to Topology 3 Credit Hours
Metric spaces, topological spaces, continuous maps, connectedness, compactness, separation axioms. Students cannot receive credit for both MATH 492 and MATH 592. (AY,W).
Prerequisite(s): MATH 451
MATH 499  Independent Studies in Math 1 to 3 Credit Hours
Independent study in mathematics for topics at the senior level. Topics and objectives chosen by agreement between student and instructor. (OC).

An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (VR) once a year; (AY) alternating years; (OC) offered occasionally

Mechanical Engineering (ME)

ME 230  Thermodynamics 4 Credit Hours
The course is a general introduction to thermodynamics with emphasis on engineering applications. Properties of pure substances. Work and heat. The first and second laws of thermodynamics. Entropy and efficiency. Applications to systems and control volumes. Mixtures of gases and vapors, air conditioning. Introduction to cycles. This course will become the first in a two-course series for mechanical engineering students, and will also be elected as a terminal course by IMSE students. Four hours lecture.
Prerequisite(s): PHYS 150 and (MATH 116 and (CHEM 134 or MPLS with a score of 215) or CHEM 144)
Restriction(s):
Can enroll if Major is Engineering, Bioengineering, Industrial & Systems Engin, Manufacturing Engineering, Electrical Engineering, Mechanical Engineering
ME 260  Design Stress Analyses 4 Credit Hours
An introduction to statics and stress analyses with emphasis on both mechanics fundamentals and design applications. (F,W,S)
Prerequisite(s): PHYS 150 and (ENGR 250* or (MATH 205* or ECE 385*)) or MPLS with a score of 215 or MATH 215*)
Restriction(s):
Can enroll if College is Engineering and Computer Science
ME 265  Applied Mechanics 4 Credit Hours
A comprehensive introduction to the science of applied mechanics, encompassing a study of forces and the stresses, deflections, and motions which they produce. Topics include the concept of equilibrium and static force analysis; the mechanics of deformable bodies (internal stresses, constitutive relationships, strains, deflections, flow, failure); statics of indeterminate systems; kinematics; kinetics of particles, systems of particles, and rigid bodies. Four hours lecture. (F,W,S).
Prerequisite(s): PHYS 150 and (MATH 205* or MATH 215*) or MPLS with a score of 215
ME 290 Spec Topics in Mech Engin 1 to 3 Credit Hours
Special topics in mechanical engineering selected according to students’ interest and availability of instructors and equipment.

ME 290B Spec Topics in Mech Engin 1 to 3 Credit Hours

ME 299 Internship/Co-op 1 Credit Hour
This is a Cooperative Education course. Students wishing to experience a work experience before graduation may elect to participate in the Cooperative Education Program (minimum of two terms). (F,W,S).
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

ME 325 Thermal Fluid Sciences I 4 Credit Hours
Prerequisite(s): (ENGR 216 or ME 215) and ME 230 and ME 260
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science

ME 3251 Applied Thermodynamics 2 Credit Hours
Power and refrigeration cycles. Thermodynamic relations. Ideal gas mixtures and psychrometrics. Reacting ideal gas mixtures. (F,W,S)
Prerequisite(s): ME 230 and ENGR 216
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if Major is Mechanical Engineering

ME 3252 Fluid Mechanics 2 Credit Hours
Fluid properties. Fluid statics. Fluid flow kinematics. Integral fluid flow analyses; the conservation laws - mass, energy, momentum. Introduction to differential analysis of fluid flow. Diversional analysis. (F,W,S)
Prerequisite(s): ME 230 and ENGR 216
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if Major is Mechanical Engineering

ME 345 Engineering Dynamics 4 Credit Hours
A comprehensive treatment of statics and the kinematics and kinetics of particles, systems of particles, and rigid bodies from a Newtonian viewpoint utilizing rigorous vector techniques. The time-dependent description of kinematical quantities and of dynamic forces and moments. Matrix methods and digital computer techniques.
Prerequisite(s): (ME 215* or ENGR 216*) and ME 260 and MATH 216

ME 349 Instrument & Measurement Systems 3 Credit Hours
Modern instrumentation systems are considered beginning with generic issues such as calibration, error analysis, and dynamic response characteristics of instrumentation. Specific transducer systems (temperature, force and pressure, etc.) are presented, as well as interfacing techniques and digital signal processing. Microprocessors are introduced for use in measurement and control applications. (F,W,S).
Prerequisite(s): (ME 265 or ME 345) and ECE 305
Corequisite(s): ME 349L
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ME 3601 Des and Analy of Mach Elem 4 Credit Hours
Application of fundamental mechanics to analysis and design of mechanical components and systems. Topics include: stress and strain analysis; experimental measurement; stress concentration; failure theories; safety factor; fatigue; fracture; combined loading; impact; buckling; energy methods. Components considered: fasteners; springs; bearings; gears; beams; shafts and other power transmission components. Numerical techniques. (F,W,S).
Prerequisite(s): (ENG 216 or ME 215) and ME 260
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if Major is Mechanical Engineering

ME 364 Prob, Stats, and Rel in Mach D 3 Credit Hours
Introduction to planned experiments in machine design and mechanical metallurgy with emphasis on orthogonal test programs with small blocks. Classical statistical analyses (e.g., analysis of variance for randomized complete block and split-plot designs) as well as computer intensive analyses (e.g., permutation and randomization tests). Maximum likelihood analysis for censored and uncensored life data and for strength (quantal response) data. Systems reliability in machine design.
Prerequisite(s): ENGR 216 (MATH 217 or MATH 227) and ME 260 and ENGR 216

ME 371 Heat Transfer 3 Credit Hours
Prerequisite(s): ME 320 and ECE 305*
Corequisite(s):

ME 375 Thermal Fluid Sciences II 4 Credit Hours
Prerequisite(s): (ME 325 or ME 320) and ECE 305*
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Engineering and Computer Science
ME 379  Thermal-Fluids Laboratory  3 Credit Hours
An experimental investigation of thermodynamic, fluid mechanic, and heat transfer principles. Students will learn about thermal-fluids instrumentation and conduct experiments. In addition, they will design their own experiments to demonstrate their understanding of the principles. (F,W,S).
Prerequisite(s): (ME 320 or ME 325 or ME 3251 or ME 3252) and (ME 349 or BENG 351) and (ME 371* or ME 375*) and (COMP 270 or COMP 106 or CPAS with a score of 40 or COMP 220)

ME 381  Manufacturing Processes I  4 Credit Hours
This course introduces the students to the fundamentals and principles of manufacturing processes for engineering materials. It seeks to transfer an understanding of the application of principles of engineering materials and their influence on manufacturing processes. Topics covered include structure and manufacturing properties of metals, casting, heat treatments, bulk deformation processes, sheet metal working processes, processing of polymers and composites, surfaces and coating, powder metallurgy, machining and joining. Case studies of design for manufacturing and measurement of product quality; economical aspects and cost considerations in manufacturing systems will be studied. Three lecture hours and three laboratory hours.
Prerequisite(s): ENGR 250 and (ME 260 or ME 265)

ME 399  Internship/Co-op  1 Credit Hour
A four-month professional work experience period of the Engineering Internship Program, integrated and alternated with the classroom terms.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

ME 410  Finite Element Method wth Appl  3 Credit Hours
A presentation of the basic concepts and fundamentals of the Finite Element Method of Analysis in general, followed by applications to both continuum and field problems. Selected areas of application: dynamics and vibration including wave propagation; acoustics; fluid mechanics including film lubrication and ground water flow; heat transfer; elasticity and stress/strain analysis including structures; electrical field problems including electrostatics and electromagnetics. Two lectures and a comp/rec. period. (F,W,S).
Prerequisite(s): (ME 345 and (ME 360 or ME 3601) and ME 375*) or (BENG 370 and BENG 325*)

ME 4191  Structural Mech & Design  4 Credit Hours
A presentation of the methods of plane elasticity to solve a variety of problems arising in the analysis and design of structures. Review of the concepts of plane stress and strain; basic equations of plane elasticity and problems, energy methods approximate/numerical techniques, elastic-plastic bending and torsion, instability of columns and frames. (F,W,S).
Prerequisite(s): ME 345 and (ME 3601 or ME 360)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ME 4201  Design of Turbomachinery  4 Credit Hours
Principles of turbomachinery design and practices. Euler’s equation for energy transfer calculations. Two- and three-dimensional velocity diagrams. Characteristic curves of axial and radial flow compressors. Design procedures of fans and blowers. Basic design and selection of pumps. Student is required to conduct a turbomachinery design project by applying the theory learned from the course. (W).
Prerequisite(s): ME 325 or ME 320
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ME 4202  Design Turbo. and Wind Gen.  4 Credit Hours
Principles of turbomachinery design and practices with emphasis on wind power generation. Euler’s equation for energy transfer calculations. Two- and three-dimensional velocity diagrams. Aerodynamics of wind turbines. Wind turbine design and control. Power generation of wind turbines, wind energy system economics and environmental impacts. Design procedures and characteristics of compressors, fans and blowers. Basic design calculations and selection of pumps. A turbomachinery design project by using the theory learned from the course may be required.
Prerequisite(s): ME 375
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if College is Engineering and Computer Science

ME 4301  Computational Thermo-Fluids  3 Credit Hours
Prerequisite(s): ME 325 and ME 375*
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Engineering and Computer Science

ME 4361  Design of HVAC Systems  4 Credit Hours
A comprehensive treatment of the design principles and practices in the heating, ventilating, and air conditioning. Psychrometrics, design loads, distribution systems, equipment selection.
Prerequisite(s): (ME 325 or ME 320 or ME 3251 or ME 3252) and (ME 375* or ME 371*)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ME 442  Control Syst Anly and Design  4 Credit Hours
Prerequisite(s): ECE 305 and ME 345
Corequisite(s): ME 442L
ME 4461 Mech Vibration & Noise Control 4 Credit Hours
Fundamentals of mechanical vibration and principles of noise control. Use of transducers and instruments to conduct sound and vibration measurements. Free and forced vibration in single and multiple degrees-of-freedom systems, damping, eigenvalues, eigenvectors, frequency response function, modal analysis, description of sound fields, acoustical materials and material testing, acoustics of rooms and enclosures, sound quality, and principles of noise control. Students will be required to conduct either a vibration or a noise control project. Two one-and-one-half hour lectures and one three-hour laboratory. (F).
Prerequisite(s): ME 345 and (ME 349* or ME 348*)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Engineering and Computer Science

ME 4471 Solar Energy Sys Analy&Design 4 Credit Hours
The course introduces students to the fundamentals of solar energy conversion and solar energy systems. Principles in thermodynamics and heat transfer required to understand the solar energy use is reviewed. Design of different types of solar energy systems are explored and assessed. Issues relating to the practical implementation of solar energy will also be considered.
Prerequisite(s): ME 325 and ME 375*
Restriction(s):
Can enroll if Class is Senior
Can enroll if Major is Mechanical Engineering

ME 452 Sustainable Energy & Environ 4 Credit Hours
This course introduces students to the fundamentals of energy sources and their environmental impacts. It covers a wide range of conventional and alternative energy sources, which includes renewable and presents the tools for assessing their sustainability and environmental impacts. It also reviews issues related to energy storage, transportation and distribution, and challenges and future opportunities.
Prerequisite(s): ME 325 and ME 375*
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Engineering and Computer Science

ME 4521 Intro Sust Energy Systems 3 Credit Hours
The course provides an overview of energy technology from a broad perspective that encompasses technical and environmental aspects. It covers a wide range of traditional and alternative energy sources and presents assessments of their availability, sustainability, and environmental impacts as well as evaluation of their potential role in solving the global energy problem.
Prerequisite(s): ME 375
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Mechanical Engineering

ME 460 Design for Manufacturing 3 Credit Hours
Design decisions based on manufacturability and process-property relationships. Design for assembly. Manufacturing tolerances and quality control methods including NDT. Design methodology used for product development.
Prerequisite(s): (ME 360 or ME 3601) and ME 381

ME 467 Senior Design I 3 Credit Hours
A guided design project course with emphasis on decision-making process associated with establishing alternatives and evaluation procedures to synthesize designs. Students will propose design projects and work in teams. Written and oral presentations will be required at the close of the term.
Prerequisite(s): ME 330 and ME 345 and ME 360 and ME 371

ME 4671 Senior Design I 4 Credit Hours
A guided design project with emphasis on the decision-making process associated with establishing alternatives and evaluation procedures to synthesize designs. Students propose design projects and work in teams to produce analytical designs, conduct evaluative experiments, and construct a physical design prototype. Engineering ethics and responsibility. Written and oral presentations are required at the close of the term. (F,W,S).
Prerequisite(s): ME 345 and (ME 360 or ME 3601) and (ME 375 or ME 371) and (ME 378* or ME 379*)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Mechanical Engineering

ME 4681 ME/BENG Dual Senior Design 4 Credit Hours
Full Title: Interdisciplinary Senior Design for ME/BENG Dual Degree
Students A guided interdisciplinary design project course where student teams propose design projects, design a device, system or process related to mechanical and bio-engineering and conduct evaluative experiments and/or construct a physical prototype. Engineering ethics and responsibility. At the end of the semester, the students are required to submit written reports and give oral presentations with a demonstration of their projects. Credit can only be awarded for one of the following courses: BENG 4671, ME 4671, and ME 4681. (W)
Prerequisite(s): BENG 351 and BENG 370 and BENG 364 and ME 375 and (BENG 375 or BENG 381)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Bioengineering, Mechanical Engineering

ME 469 Senior Design II 1 to 4 Credit Hours
Student teams develop mechanical or interdisciplinary design projects, or continue projects begun in ME 4671. Work includes mechanical engineering design, and could possibly include fabrication and testing. Projects can involve efforts by interdisciplinary teams. Written and oral presentations are required.
Prerequisite(s): ME 4671
ME 472  Prin & Appl of Mechatronic Sys  4 Credit Hours
This course provides the student with hands-on interdisciplinary experience of mechatronic systems, which integrate mechanical, electrical/electronic components with computer and microprocessors to design a high performance system. Subjects will be covered including Mechanical and Electrical Actuator Systems, Digital Transducers and Modulators, Microcomputers and Microcontrollers Interfacing Actuators using graphic programming techniques, Programmer Logic Controllers (PLC), and Modeling of Fluid Systems. Laboratories form the core of the course. They cover microprocessor controlled mechanical actuator system for motion controls, materials handling, PLC programming and fluid power systems. The labs make extensive use of Simulink?, a MATLAB? toolbox, Mikro - C and/or Arduino. Each student builds control circuits on a breadboard kit to simulate a real operation. Student will be required to perform a course design project with mechatronic application in nature.
Prerequisite(s): ME 265
Corequisite(s): ECE 460, ME 442
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if College is Engineering and Computer Science

ME 481  Manufacturing Processes II  3 Credit Hours
A study of casting, welding, plastic forming, and machining of materials; analysis of forces, energy requirements, and temperature effects; design specifications economically obtainable in terms of dimensional accuracy, surface finish, and material properties, functional characteristics of equipment. Two lectures and a laboratory.
Prerequisite(s): ME 381

ME 483  Dsgn Cons in Poly and Comp Mat  3 Credit Hours
Physical and mechanical behavior of unreinforced and reinforced (composite) polymeric materials in relation to their applications in modern technology. Emphasis is given to the design considerations with these materials in contrast to those with metallic materials. Time-dependent properties, such as creep and stress relaxation, are considered. Manufacturing methods are covered. Three lectures/ recitation.
Prerequisite(s): ME 360 or ME 3601

ME 484  Manufacturing Poly Comp Matl  3 Credit Hours
This course will consider the manufacturing processes for production of plastics and composite parts. The emphasis will be on manufacturing principles that are based on rheology, polymer flow and transport phenomena. Design considerations and quality control techniques for manufacturing plastic and composite parts will also be covered.
Prerequisite(s): ME 381 or IMSE 382

ME 490  Directed Design Project  1 to 3 Credit Hours
Design project involving not only design but also analysis, fabrication and/or testing. Topics may be chosen from any of the areas of mechanical engineering. Students who have taken ME 425 and ME 464 will be encouraged to take this course. The student will submit a report on his or her project at the close of the term. (F,W,S).
Prerequisite(s): ME 360 or ME 381 or ME 425 or ME 464
Restriction(s):
Can enroll if Class is Senior or Graduate

ME 491  Directed Research Problems  1 to 3 Credit Hours
Special problems selected for laboratory or library investigation with intent of developing initiative and resourcefulness. (F,W,S).
Restriction(s):
Can enroll if Class is Senior or Graduate

ME 492  Guided Study in Mech Eng  1 to 3 Credit Hours
Individual study, design or laboratory research in a field of interest to the student. Topics may be chosen from any of the areas of mechanical engineering. The student will submit a report on his or her project at the close of the term. (F,W,S).
Restriction(s):
Can enroll if Class is Senior or Graduate

ME 493  Advanced Vehicle Energy Sys  3 Credit Hours
This course will introduce the advanced energy conversion systems in automotive vehicles and cover the fundamentals, characteristics, and design consideration of the energy systems. The topic includes using alternative fuels in internal combustion engines, advanced power train systems in hybrid, electric, and fuel cell vehicle, and exhaust energy recovery systems.
Prerequisite(s): ME 325* and ECE 305*
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if College is Engineering and Computer Science

ME 496  Internal Combustion Engines I  2 to 3 Credit Hours
Comparison of characteristics and performance of several forms of internal combustion engines including the Otto and diesel types of piston engines and the several types of gas turbines; thermodynamics of cycles, combustion, ignition, fuel metering and injection, pollution from engines and modeling techniques. Lectures, theory demonstrations, and experiments.
Prerequisite(s): (ME 320 and ME 330) or ME 325

ME 4981  Automotive Engineering  4 Credit Hours
Analysis of vehicle performance in terms of acceleration, gradability, speed, fuel economy, ride comfort, stability and safety. Engine-transmission compatibility and matching. Fundamental vehicle dynamics. Computer modeling and simulation of vehicle systems by numerical techniques. Transmission ratio and torque analysis. Design of vehicle systems such as brakes, suspensions, drive line components, steering mechanisms and other subsystems. Four hours lecture. (F,W).
Prerequisite(s): ME 345 and (ME 360 or ME 3601)
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Major is Mechanical Engineering

ME 499  Internship/ Co-Op  1 Credit Hour
A four-month professional work experience period of the Engineering Internship Program, integrated and alternated with the classroom terms.
Restriction(s):
Can enroll if Class is Senior or Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
**Microbiology (MICR)**

**MICR 309  Introduction to Mycology  4 Credit Hours**
An introduction to the biology of the fungi. Classification, structure, industrial use, gastronomic qualities, and disease-producing ability of macroscopic and microscopic forms are studied. Laboratories include microscopic and macroscopic examinations of fungi, and their growth and field studies on the occurrence and classification of edible and poisonous varieties. Three hours lecture, four hours laboratory. (OC).
**Prerequisite(s):** B IOL 130 and B IOL 140

**MICR 380  Epidemiology  2 Credit Hours**
A study of disease occurrence and spread in human populations. The primary concern is with groups of persons, rather than individuals. Emphasizes methods of study that would contribute to understanding disease etiology. Two hours lecture. (OC).
**Prerequisite(s):** B IOL 140

**MICR 385  Microbiology  4 Credit Hours**
The biology of microorganisms is considered through study of the properties of bacteria, fungi, algae, protozoa, and viruses. Microbial structures are discussed and correlated with their function. Aspects of cellular metabolism pertinent to microorganisms are emphasized. The interaction of microorganisms and their environment, animate and inanimate, is discussed with respect to the beneficial or harmful effects of the different microbial groups. Laboratory exercises introduce the student to basic, practical microbiological techniques and illustrate various principles of microbial life. Three hours lecture, four hours laboratory. (F.S).
**Prerequisite(s):** B IOL 130 and B IOL 140
**Corequisite(s):** MICR 385L

**MICR 390  Topics in Microbiology  1 to 6 Credit Hours**
Current topics in microbiology will be presented through a lecture, discussion and/or laboratory format. Topics will vary, as appropriate, and may cover any area of microbiology including studies on bacteria, algae, fungi, protozoa, viruses, biotechnology, mechanisms of pathogenesis and immunology. (OC).
**Prerequisite(s):** B IOL 385 or MICR 385

**MICR 405  Applied & Environ Microbiology  4 Credit Hours**
Advanced treatment of the interplay of microorganisms and the environment. Topics will include soil and water microbiology (bacteria, archaea, fungi, algae, protozoans and viruses) and plant-microbe interactions (pathogenetic and symbiotic) as well as the role of microorganisms in decomposition, nutrient cycling (carbon, nitrogen, sulfur and metal cycling), wastewater and biosolids treatment, and bioremediation. 3 hr lec, 1-4 hr lab. For graduate credit elect MICR 505.
**Prerequisite(s):** MICR 385 or B IOL 385
**Corequisite(s):**
**Restriction(s):**
Can enroll if Class is Junior or Senior

**MICR 406  Microbial Genetics  3 Credit Hours**
A course that emphasizes the genetics and molecular biology of bacteria and their viruses. Topics include DNA structure and replication, recombination, DNA repair, genetic mapping, mechanisms of gene transfer, regulation of gene expression, mutagenesis, and recombinant DNA techniques. (YR, W).
**Prerequisite(s):** MICR 385 or B IOL 385 or B IOL 306

**MICR 430  Medical Virology  3 Credit Hours**
The course provides a general description of the history and nature of animal virus disease. Emphasis is placed on the pathogenesis and clinical description of specific diseases. Three hours lecture.
**Prerequisite(s):** MICR 385 or B IOL 385

**MICR 440  Micro Genetics & Phys Lab  1 Credit Hour**
This course emphasizes the use of advanced microbiological techniques for understanding the genetics and physiology of microorganisms. Experiments focus on the understanding of general microbial phenomena, such as nutrition, metabolism and biochemistry; protein and nucleic acid synthesis; energy generation, enzyme regulation, membrane transport, motility, differentiation, cellular communication and the behavior of populations.
**Prerequisite(s):** B IOL 385* or MICR 385* or B IOL 301* or B IOL 406* or MICR 406* or B IOL 485* or MICR 485*
**Restriction(s):**
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

**MICR 450  Virology  4 Credit Hours**
The first half of this course deals with bacterial viruses, with emphasis on classical events in this field. The second half surveys the field of animal viruses, with emphasis on recent discoveries, including replication, pathogenesis, and viral association with cancers. Three hours lecture, four hours laboratory. (AY,W).
**Prerequisite(s):** B IOL 385 or MICR 385 and CHEM 226

**MICR 455  Immunology  4 Credit Hours**
A detailed study of the field of immunology. Among the topics covered are various aspects of the immunological response, such as humoral or cell-mediated immunity, cell-cell interactions, and immunology as related to the cause and prevention of disease. Three hours lecture, four hours laboratory. (AY,F).
**Prerequisite(s):** B IOL 385 or B IOL 301 or MICR 385

**MICR 459  Pathogenic Microbiology  4 Credit Hours**
An introduction to pathogenic microorganisms and mechanisms of microbial pathogenicity. Disease-causing bacteria, fungi, viruses, and protozoa are studied. Laboratories emphasize clinical approaches to isolation, identification, and treatment. Three hours lecture, four hours laboratory. (AY,F).
**Prerequisite(s):** B IOL 385 or MICR 385

**MICR 485  Physiology of Microorganisms  3 Credit Hours**
An in-depth examination of the physiology of microorganisms. Areas of emphasis include the growth and nutrition of microorganisms, the development of viruses, the microbial degradation of organic compounds, the regulation of degradation reactions, and the biosynthesis of uniquely microbial compounds and secondary metabolites, such as antibiotics and toxins. Consideration is given to the natural environments of specific microorganisms. (YR, W).
**Prerequisite(s):** (B IOL 385 or MICR 385 and CHEM 225* or B CHM 370) or B IOL 370 or CHEM 370

**MICR 490A  Topics in Microbiology  3 Credit Hours**
**TOPIC TITLE: Receptors and Cell Signalling.** A study of how receptor binding causes changes in cell activity. Topics will include an analysis of protein/ligand binding and a study of selected receptor signalling systems: ion channels, G-protein systems, tyrosine kinase activation, and the steroid receptors.
**Prerequisite(s):** B IOL 301 or B IOL 303 or B CHM 470 or B IOL 470 or CHEM 470
This course places students in an experiential learning environment which provides participants the opportunity to 'experience' their learning, rather than simply being told what they are to learn. Students participate in a wide variety of group exercises designed to emphasize various professional leadership competencies and insights. These events, which range from physically challenging to mentally stimulating, are held both inside the classroom and in outdoor settings. The instructor acts as a facilitator, helps guide student processing through after action reviews of the events to facilitate student understanding of leadership principles, group dynamics, and problem solving methods. In addition to military skills, practical 'life skills' are emphasized. Lessons are designed to maximize student participation, inspire intellectual curiosity and introspection, as well as group interaction.

Military Science (MILS)

MILS 101  Foundations of Officership  1 Credit Hour
An overview of the United States Army and its organization, customs and traditions, ranking structure, and the roles of the officer and noncommissioned officer. Students will conduct hands-on training in land navigation, rappelling, marksmanship, drill and ceremony, and small unit tactics.

MILS 102  Basic Leadership  1 Credit Hour
This course expands upon the fundamentals introduced in the previous term by focusing on communications, leadership and problem solving. It is designed to build on the experience of the first term and further broaden the introduction to the Army as well as to the leadership skills and "life skills" needed by an Army officer. Learning objectives focus on the following: introduction to communication principles of military briefings and effective writing; the Army Problem Solving Process; goal setting; and communication skills as they relate to listening, speaking and the counseling process; as well as several lessons that provide an overview of Army life.

MILS 201  MILS: Leadership & Teamwork  2 Credit Hours
This course takes the unique approach of placing students in a wide variety of group exercises designed to emphasize various professional leadership competencies and insights. These events are held both inside the classroom and in outdoor settings. The instructor acts as a facilitator, helps guide student processing, or after action reviews of the events to derive the leadership group dynamics, and problem solving lessons that the exercise offer. In addition to military skills, practical 'life skills' are emphasized. The lessons are designed to maximize student participation, inspire intellectual curiosity, stimulate self-study and encourage cadets to interact.

MILS 202  Leadership and Teamwork  2 Credit Hours
This course takes the unique approach of placing students in a wide variety of group exercises designed to emphasize various professional leadership competencies and insights. These events are held both inside the classroom and in outdoor settings. The instructor acts as a facilitator, helps guide student processing, or after action reviews of the events to derive the leadership group dynamics, and problem solving lessons that the exercise offer. In addition to military skills, practical 'life skills' are emphasized. The lessons are designed to maximize student participation, inspire intellectual curiosity, stimulate self-study and encourage cadets to interact.
An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:

- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally.

### Modern & Classical Language (MCL)

**MCL 103 First-Year Swedish I 3 Credit Hours**

A beginning course in the Swedish language. Open only to CECS undergraduate students taking part in the College of Engineering and Computer Science’s study abroad program with the Jonkoping School of Engineering in Sweden. The Course meets in Jonkoping, Sweden.

**MCL 104 First-Year Swedish II 3 Credit Hours**

A second course in the Swedish language. Open only to CECS undergraduate students taking part in the College of Engineering and Computer Science’s study abroad program with the Jonkoping School of Engineering in Sweden. The Course meets in Jonkoping, Sweden.

**MCL 105 Beginning Ancient Greek I 4 Credit Hours**

Ancient Greek I is designed for students wishing to begin the study of Ancient Greek and will include a study of grammar and vocabulary with readings of simple Attic prose. Attention will also be given to the Greek roots of English words, including scientific and medical terms. No previous foreign language study is required as a prerequisite. (OC).

**MCL 106 Beginning Ancient Greek II 4 Credit Hours**

Ancient Greek II complements the study of Ancient Greek syntax and morphology and puts greater emphasis on reading connected passages in ancient Greek. Passages from selected classical authors, such as Herodotus, Sophocles, Aristophanes, and Plato will be read. MCL 105 is required as a prerequisite. (OC).

**MCL 111 Armenian I 4 Credit Hours**

Introduction to basic construction and vocabulary of the Armenian language. Lab to be arranged. Completion of this course prepares the student for Armenian II. (OC).

**MCL 112 Armenian II 4 Credit Hours**

Continuation of Armenian I. Introduction to basic construction and vocabulary of the Armenian language. Prerequisite(s): MCL 111

**MCL 205 Intermediate Ancient Greek 4 Credit Hours**

An intermediate language course in ancient Greek designed to increase the students’ ability to read Greek with accuracy and speed and improve their skill in comprehension and translation. A wide range of reading selections of Greek prose and poetry will serve as the basis for translation, class discussion, and written assignments. Although the course includes a partial review of accidence and syntax as well as assigned translations from English to Greek, primary emphasis will be placed upon reading and translating Greek texts, whether prose (e.g., Xenophon, Herodotus, Lysias, Plato) or poetry (e.g., Euripides, Aristophanes). (OC)

Prerequisite(s): MCL 106

**MCL 206 Intermediate Ancient Greek II 4 Credit Hours**

MCL 206 is the second course in intermediate ancient Greek and is designed to provide knowledge and familiarity with the language and style of the Homeric epics, as well as an introduction to related topics. We will learn Homeric Greek and how it differs from Attic, read extensive selections from the Iliad or the Odyssey in Greek, and discuss Homer’s works as poetic, literary, and cultural texts. The selections read will serve as the basis for translation, class discussion, and written assignments. Related topics to be presented include: the archaeological excavations of Troy, the scope of ancient epics, the Homeric Question and oral composition, and the nature of the Greek hero. (OC)

Prerequisite(s): MCL 205

**MCL 233 Second-Year Swedish 3 Credit Hours**

**MCL 234 Second-Year Swedish II 3 Credit Hours**

**MCL 299 Independent Studies in MCL 1 to 3 Credit Hours**

Reading or analytical assignments in Modern and Classical Languages in accordance with the needs and interests of those enrolled and agreed upon by the student, instructor and endorsed by the department chair.

Also can be elected when a student is studying language as part of a study-abroad program.

**MCL 325 Political Islam 3 Credit Hours**

This course is designed as an introduction to the main issues and themes in the study of political Islam and Muslim Politics, providing a broad overview of the pertinent key concepts and issues. It provides a historical approach to the study of political Islam, and touches upon the nineteenth century Islamic revivalism. It also, explores diversity in contemporary Islamic thought and global Islamist movements.

Restriction(s):

Can enroll if Class is Sophomore or Junior or Senior

**MCL 3350 Arabic Culture in Class Texts 3 Credit Hours**

This course gives students an appreciation of Arabic civilization through the study of excerpts from masterworks of the literary and intellectual Arabic heritage. It provides practice in reading pre-modern and modern classical texts from a variety of intellectual disciplines. Students may not receive credits for both MCL 3350 and ARBC 335. (W)

**MCL 353 Italian Culture Civilization 3 Credit Hours**

This course is an exploration of various facets of Italian culture and civilization. We will examine the major historical, political, social, economic, artistic and literary aspects of Italy, from its beginnings to the 21st century, through the close study of key persons, events and documents which shaped Italy’s culture and civilization, and promoted the many accomplishments and contributions of this country.
MCL 365 Introduction to the Qur’an 3 Credit Hours
This course is an introduction to the Qur’an. This class will cover the historical and the cultural factors in which the Quran appeared. The class will also examine some of the major themes covered in the Qur’an such as gender, science, pluralism, worldview and so forth. Also, it will cover major schools of interpretations and methodologies ranging from the literary to the scientific. The class will be conducted in English and knowledge of Arabic is desired but not required. No prerequisites. The class will consist of lectures, discussions, and movies.

MCL 381 Postwar European Cinema 3 Credit Hours
The course will concentrate on a series of films from various European countries with a focus on the socio-political issues, historical events and cultural preoccupations that have defined and also challenged European societies from WWII to the present. Zeroing in on the construction of European identities, the course will analyze and compare modes of narrating national, class, racial, sexual and social differences in different European nations. Themes such as memories of war and the Holocaust, new conflicts, class, immigration, women's rights, gender, and East-West relations will be addressed. The course will thus privilege a cinema that offers a “recit,” a story. Particular attention will be given to discourses on thesperseness and on the ways in which film culture has reflected, reinforced, reshaped and, in some instances, contested Europe’s past and current dominant ideologies, and identities. Readings by cultural historians and analysts will provide the context for an understanding of the films. The course will conclude with a discussion of the possible existence of a specific postwar European Cinema.

Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

MCL 390 Topics in Arabic in Translation 3 Credit Hours
Examination of problems and issues in selected areas of Modern & Classical Languages. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ.

MCL 399 Independent Study in Modern & Classical Languages 1 to 3 Credit Hours
Reading or analytical assignments in Modern and Classical Languages, including Arabic, in accordance with the needs and interests of those enrolled and agreed upon by the student, instructor, and endorsed by the department chair.

MCL 401 Images of Women in Germany 3 Credit Hours
This course will focus on the position of women in Germany after WWII and up to and after the unification of East and West Germany. Particular attention will be given to the gendered history of working through the National Socialist past, the division and reconstruction of the two nation-states, and the terrorism in West Germany in the 1970’s. Students will examine images of women in films and tie them to the ideologies of gender and status of women in these larger issues of German history. Course readings will be in English. Students wishing to receive German credit for the course must enroll concurrently in GER 380: Praktikum. Students cannot receive credit for both MCL 401 and MCL 501.

Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

MCL 455 This American Life 3 Credit Hours
The course "This American Life: Immigrant Literature and the American Dream" is a literary and cultural analysis of the literature of immigration. The readings are from works of fiction in a variety of genres, and are written by American and non-American prize-winning authors. Their common denominator is the pursuit of the American Dream and its many multifaceted aspects. The themes explored include: assimilation, acculturation, diversity, language, subculture, intertextuality, nostalgia, belonging, and double identity. Student wishing to take this course for graduate credit should sign up for MCL 555. Students cannot receive credit for both MCL 455 and MCL 555.

Restriction(s):
Cannot enroll if Class is Freshman or Graduate

MCL 490 Topics in Modern & Classical Languages 3 to 6 Credit Hours
An examination of various theoretical or practical concerns of the field of foreign language. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Music Theory (MTHY)

MTHY 100 Fundamentals of Music 3 Credit Hours
This course presents the fundamentals of Western music theory through practical experience, including music notation, sight-singing, and ear training. Prerequisites: none.

MTHY 101 Music Theory I 3 Credit Hours
Writing and analysis of melodic lines, alone and in counterpoint, leading to writing and analysis of harmony. Emphasis on being able to hear the sounds symbolized by notation. (F).

Prerequisite(s): MTHY 100

MTHY 102 Music Theory II 3 Credit Hours
Continuation of MTHY 101 including harmonic analysis, layer analysis, and beginning formal analysis. (W).

Prerequisite(s): MTHY 101

MTHY 390 Topics in Music Theory 3 Credit Hours
Examination of problems and issues in selected areas of music history. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specified topics differ. (OC).

MTHY 399 Independent Study Music Theory 1 to 3 Credit Hours
Readings, analytical assignments and/or compositions in music selected in accordance with the needs and interests of those enrolled and agreed upon by the instructor and the student.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Natural Science (NSCI)

NSCI 120  Matter, Energy, and Life I  4 Credit Hours
A general science course with emphasis on basic principles and their applications. Includes basic life processes, the fundamentals of chemistry and physics, and human systems and genetics. NSCI 120 is complementary to but not a prerequisite for NSCI 121. Students cannot use both NSCI 120 and BIOL 100 to satisfy the natural sciences distribution requirements. Three hours lecture, three hours laboratory. (OC).
Corequisite(s): NSCI 120L

NSCI 121  Matter, Energy, and Life II  4 Credit Hours
A general science course with emphasis on basic principles and their applications. Includes ecology and evolution, energy and energy technology, geology and astronomy. NSCI 121 is complementary to, but may be taken independently of, NSCI 120. Three hours lecture, three hours laboratory. (F,S).
Corequisite(s): NSCI 121L

NSCI 231  Inquiry: Physical Science  3 Credit Hours
This course develops a strong conceptual understanding of physical science. Prospective K-8 teachers will participate in the same kind of inquiry-based experiences that they will use in their own teaching. Topics will include light and color, matter, and motion. (F,W,S)
Prerequisite(s): EXPS 220

NSCI 232  Inquiry:Earth/Planet Science  3 Credit Hours
This course develops a strong conceptual understanding of earth and planetary science. Prospective K-8 teachers will participate in the same kind of inquiry-based experiences that they will use in their own teaching. Topics will include geology, weather, and astronomy. (F,W,S)
Prerequisite(s): EXPS 220

NSCI 233  Inquiry: Life Science  3 Credit Hours
This course develops a strong conceptual understanding of Life Science. Prospective K-8 teachers will participate in the same kind of inquiry-based experiences that they will use in their own teaching. Topics will include characteristics of life, plants and animals, and ecology. (F,W,S)
Prerequisite(s): EXPS 220

NSCI 290  Projects in Natural Sciences  1 to 2 Credit Hours
An opportunity for non-science and lower-division science students to carry out independent projects in the natural sciences under the supervision of a faculty member. Projects range from laboratory and field observations to the development of materials and apparatus for use in laboratory exercises and classroom demonstration. In general, one credit hour corresponds to four hours of work per week. Permission of instructor. (F,W).

NSCI 295  Topics in Natural Sciences  1 to 3 Credit Hours
An introduction to the themes of the natural sciences reflecting their interactions with one another and society. Topics vary and are announced in the current time schedule. The course may be repeated no more than once under a different topic. One to three hours lecture, seminar, or field study.

NSCI 325  Gender, Science & Engineering  3 Credit Hours
Explores some of the history of women in science and engineering, the current status of women in science and engineering, and feminist theory in research. Topics include cultural influences on women in science and engineering, careers and life balance, and a feminist approach to scientific and engineering teaching and research.

NSCI 331  Phy. Sci. & Everyday Thinking  3 Credit Hours
Full Title: Physical Science and Everyday Thinking An inquiry-based physical science course suitable for prospective or practicing elementary teachers majoring or minoring in science studies. Students will construct meaningful understanding of physics and chemistry concepts through discussion, hands-on experiences and computer simulations. Specific topics will include the application of the atomic model to the behavior of gases, physical changes, and chemical changes. A learning-cycle pedagogy will be employed that consists of elicitation of initial student ideas, development of new or modified ideas, building student consensus on final ideas, and the application of ideas to new situations (F, W, S).

NSCI 332  Inquiry: Mich Earth Science  3 Credit Hours
This course develops a strong conceptual understanding of earth science as it applies to the state of Michigan. Prospective K-8 teachers will participate in the same kind of inquiry-based experiences that they will use in their own teaching. Topics will include landforms, water, weather and seasons in Michigan.
Prerequisite(s): NSCI 232 or GEOL 118
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior
Can enroll if Degree is Bachelor of Arts, Bachelor of Science
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

NSCI 333  Inquiry: PBL in Life Science  3 Credit Hours
A problem-based learning course suitable for prospective or practicing elementary and middle-school teachers who major or minor in integrated science studies. This course builds on and reinforces content learned at the introductory level by applying life science concepts to complex real-world problems presented in class. Students will work in small groups to identify and research concepts and principles they need to know in order to progress through the real-world life science problems. The case studies used will require the understanding and application of concepts in cell structure and function, genetics, animal and plant physiology, and ecology.
Prerequisite(s): NSCI 233 or BIOL 130
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Sophomore or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

NSCI 390  Topics in Natural Sciences  1 to 3 Credit Hours
A course in special topics current to natural sciences. Topic and format (seminar, lecture and laboratory) for the course may vary. See current Schedule of Classes. (OC).

NSCI 415  Nutrition and Health  3 Credit Hours
The influence of nutrition on physical and mental development from conception to adulthood. Topics include: 1) definition and function of the essential nutrients for people, 2) basic principles of human growth and development, 3) the causes and consequences of under- and over-nutrition, 4) feeding practices for infants and children and the development of food habits, 5) nutrients and food problems in the local region and in global perspective. Students cannot receive credit for both NSCI 415 and NSCI 515. (YR).
Prerequisite(s): ANTH 101

NSCI 490  Topics in Natural Sciences  1 to 3 Credit Hours
A course in special topics current to natural sciences. Topic and format (seminar, lecture and laboratory) may vary. See current Schedule of Classes. (OC).
NSCI 490A  Topics in Natural Science  1 Credit Hour
Topic: Workshop Science Teaching in Elementary/Middle School, This course will help you identify and correct weaknesses in your scientific knowledge so that you will be prepared to successfully complete the Michigan Teacher Test for Teacher Certification General and Integrated Science.

NSCI 497  Natural Sciences Colloquium  1 Credit Hour
A series of colloquia on selected topics representing frontier areas of current research in the natural sciences. Lectures by guest speakers invited by the department constitute a major component of the course. One hour seminar. (F).

NSCI 498  Independent Study in NSCI  1 to 3 Credit Hours
Provides an opportunity for students to pursue independent library-based research or readings under the direction of a faculty member. For students who wish to study an area that is interdisciplinary rather than an area focused on a single science. The student and the faculty member must complete a contract outlining the area to be studied and the product of the research.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Undergraduate NCFD or Undergraduate NCFD or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters

NSCI 499  Laboratory Research in NSCI  1 to 3 Credit Hours
Provides an opportunity for students to pursue independent laboratory-based research under the direction of a faculty member. For students who wish to study an area that is interdisciplinary rather than an area focused on a specific science. The student and the faculty member must complete a contract outlining the area to be studied and the product of the research.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Undergraduate NCFD or Undergraduate NCFD or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Operations Management (OM)

OM 300  Intro to Operations Management  3 Credit Hours
Concerned with the strategic, tactical and short-term managerial issues relating to the efficient production of services and products. Examples of such issues are: manufacturing technology selection, facility location, strategic, tactical and operational planning and control and quality. (F.W.S)
Prerequisite(s):
MATH 104 or MATH 105 or MATH 113 or MATH 115 or MPLS with a score of 115
Restriction(s):
Cannot enroll if Class is Freshman

OM 460  Supply Chain Management  3 Credit Hours
This course explores the basic concepts of managing flow of materials in a typical enterprise supply chain. Students will examine a complete overview of material flow, for internal and external suppliers, to and from the enterprise.
Prerequisite(s):
OM 300 or OM 400
Restriction(s):
Can enroll if Level is Undergraduate

OM 465  Strategic Sourcing  3 Credit Hours
This course provides an in-depth analysis of the procurement process and supplier management with strong analysis placed on managing a supplier base for both products and services. Both theoretical and quantitative perspectives will be offered. In addition, topics will be addressed from strategic, financial and global perspectives.
Prerequisite(s):
OM 300 or OM 400
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

OM 470  Analys & Desgn of Supply Chain  3 Credit Hours
The purpose of this course is to equip the student with the ability and the tools necessary to recognize, analyze, and resolve significant problems in the operation of a supply chain system through the application of quantitative techniques. This course focuses on the strategic role of the supply chain, key strategic drivers of supply chain performance, and the tools and techniques for supply chain analysis.
Prerequisite(s):
OM 300 or OM 400
Restriction(s):
Can enroll if Level is Undergraduate

OM 475  Supply Chain Logistics Mgmt  3 Credit Hours
The overarching course objective is to develop an in-depth understanding of integrative managerial issues and challenges related to developing and implementing a firm’s logistics strategy. Attention is directed to the logistical mission confronted by varied types of business organizations. Logistics is positioned as a value-adding process that achieves time and place synchronization of demand stimulation and operations fulfillment. Emphasis will be placed on challenges related to providing logistical support for procurement, manufacturing and market-distribution.
Prerequisite(s):
OM 300 or OM 400
Restriction(s):
Can enroll if Level is Undergraduate

OM 470  ERP in SCM  3 Credit Hours
This course provides in-depth coverage of the role and impact of enterprise resource planning (ERP) concepts in managing a supply chain. The design of a supply chain information system (SCIS) and its various components is explored utilizing ERP concepts in managing supply and demand through the implementation of an integrated enterprise. Both theory and applications are emphasized in the course. Hands-on experience in the development of some components of SCIS utilizing ERP systems is provided.
Prerequisite(s):
(OM 300 or OM 400) and (ITM 310 or MIS 310)
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

OM 483  Seminar: Operations Management  1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members. Permission of School of Management.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business
OM 493 Research: Operations Management 1 to 3 Credit Hours
To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit. Permission of College of Business.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Organizational Behavior (OB)

OB 354 Behavior in Organization 3 Credit Hours
A survey course addressing the theory and practical application of organizational behavior concepts at the individual, group, and organizational levels. Topics include: personality and attitudes, motivation, groups and teams, leadership, power, ethics, structure and organizational design, culture, and decision-making.
Restriction(s):
Can enroll if Class is Junior or Senior

OB 401 Management Skills Development 3 Credit Hours
This course provides an opportunity to study the concepts, problems and techniques of managing the human resources of an organization with emphasis on application and skill building. Topics include: skills development for interviewing, counseling and appraising employees; work team leadership and development; group problem solving and decision making; management of intergroup relationship and conflict resolution.
Prerequisite(s): OB 354
Restriction(s):
Can enroll if Class is Junior or Senior

OB 402 Organizational Change & Devlp 3 Credit Hours
The purpose of this course is to introduce the theories, methods and practice of organizational change and development and to provide a conceptual framework for examples of planned change. Topics will include: processes of organizational change, intervention methods, sequencing and integration of change processes, change roles and role relations, change objectives and criteria for change.
Prerequisite(s): OB 354

OB 403 Negotiation and Conflict Mgt 3 Credit Hours
This course will explore negotiation, power, and conflict, outlining the components of effective negotiation. Distributive, integrative, multi-party, and cross-cultural negotiation situations will be considered. Students will gain experience in preparing and implementing negotiation through in-class negotiations.
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

OB 404 Intl Dimensions of Org Behv 3 Credit Hours
This course examines the international dimensions of organizational behavior, including topics such as organizational and national culture, cross-cultural communication, and global aspects of leadership, motivation, and team management.
Prerequisite(s): OB 354
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

OB 485 Seminar: Organizational Behv 1 to 3 Credit Hours
To provide students with an opportunity for intensive study in current selected areas related to the research activities and/or professional activities of faculty members. Permission of College of Business.
Restriction(s):
Can enroll if Class is Senior
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Philosophy (PHIL)

PHIL 100 Introduction to Philosophy 3 Credit Hours
An introduction to philosophical thinking through an examination of some timeless human problems such as the existence of God, the problem of freedom, and the attempt to find an ethical foundation for life. (F; W).

PHIL 120 Philosophy and Religion 3 Credit Hours
An examination of how basic concerns of philosophy impinge on questions of religious beliefs. Using philosophical texts, the course will explore such questions as the following: Does God exist? Does human life have a purpose? How can we know whether religious claims are true?
PHIL 200  The Human Condition   3 Credit Hours
The human condition as seen in selected works of philosophy and literature. Typical issues: the meaning of life, the existence of God, moral responsibility for human actions, and the role of society in promoting or hindering human excellence. (OC).

PHIL 233  Critical Thinking   3 Credit Hours
A study of the nature and justification of reasoned arguments, both deductive and inductive, as they occur in natural language. A consideration of topics in language that promote an understanding of ways of reasoning, including definitions and fallacies. (F,W).

PHIL 234  Symbolic Logic   3 Credit Hours
This course will examine the central themes in modern symbolic logic including consistency, truth-functionality, sentential first-order predicate logic, and the logic of identity and possibility. These themes and their relation to the wider philosophical context will be discussed. (F,W).

PHIL 240  Ethics   3 Credit Hours
A study of ethical concepts and theories. Typical questions: Is the morality of an action based on its results or on the intent of the person acting? Is ethics purely rational? What makes a good person? Ethical principles may be applied to such issues as abortion, capitalism, war, and capital punishment. (F,W).

PHIL 301  Ancient Philosophy   3 Credit Hours
An examination of the metaphysical, epistemological, ethical, and political theories of the ancient Greek philosophers with particular attention paid to Plato and Aristotle and to the influence of their ideas on Western culture. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 302 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 302  Modern Philosophy   3 Credit Hours
A study of 17th and 18th century European philosophers including such philosophers as Descartes, Spinoza, Hume, and Kant with emphasis on their metaphysical and epistemological theories and how those theories provided a foundation for science and a bedrock for modern thought. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 303  Kant and the 19th Century   3 Credit Hours
The development of philosophical thought from Kant through the 19th century. In addition to Kant, figures discussed may include Hegel, Schopenhauer, Marx, Kierkegaard, and Nietzsche. Readings in selected texts. (OC).

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 304  Twentieth-Century Philosophy   3 Credit Hours
A study of selected topics, movements, and figures in the philosophy of the twentieth century, including such representative subjects as continental philosophy, contemporary philosophy of mind, and analytic philosophy. Designed to meet the needs of students in literature and the history of ideas as well as philosophy students. Students electing this course must have successfully completed a previous course in philosophy or have permission of the instructor.

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 340 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 305  Marxism   3 Credit Hours
This course is an introduction to the philosophy of Marxism which emphasizes Marx's theories of human nature, alienation, class struggle, and revolution through readings of classical and contemporary texts. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor. (OC).

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 310 or PHIL 315 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 306  Islamic Philosophy   3 Credit Hours
The course covers the development of Islam, basic Islamic doctrine, and a selection of issues that have been debated within the Islamic philosophical tradition. Students read original texts by Muslim philosophers and think critically about the issues in them and the arguments raised about them. All readings in English; no knowledge of Arabic required.

Prerequisite(s): PHIL 100

PHIL 307  Medieval Philosophy   3 Credit Hours
This course is an introduction to Medieval Philosophy and is structured around the ideas and works of key philosophers in the Christian, Islamic and Jewish religious traditions. It attempts to answer the question of what `Medieval Philosophy? is and how it fits into the larger context of the Western philosophical tradition. The course is roughly divided into four sections based on the chronological development of philosophy through the Middle Ages? (I) Early Medieval Christian Philosophy, (II) Islamic Philosophy, (III) Jewish Philosophy and (IV) Latin Christian Philosophy in the Thirteenth and Fourteenth Centuries. We will look at what some famous Christian, Muslim and Jewish philosophers, such as Augustine, Boethius, Anselm, Peter Abelard, Al-Ghazali, Ibn Rushd, Saadia, Maimonides, Aquinas, Scotus and Ockham had to say about a diverse range of philosophical issues and topics, including the existence and nature of God, free will, morality, reason and revelation, human nature and the problem of universals. (YR)

Prerequisite(s): PHIL 100 or HUM 200 or PHIL 200 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 350

PHIL 310  Darwinism and Philosophy   3 Credit Hours

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 340 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490
PHIL 312  Environmental Ethics  3 Credit Hours
The relationship of human beings to the non-human environment raises pressing moral and political issues. This course will use the theories and concepts of philosophical ethics to explore such questions as human obligations to non-human animals; the preservation of wilderness; balancing economic, aesthetic, and spiritual values; and the problems of pollution, urban sprawl, and ecological justice. Prerequisite or permission of instructor. (YR).
Prerequisite(s): PHIL 100 or PHIL 233 or PHIL 240* or CRJ 240 or ENST 105 or ENST 301

PHIL 315  Ethics of War & Peace  3 Credit Hours
A philosophical exploration of ethical issues underlying war and peace. The course will treat such questions as the following: what wars, if any, are just? Are there moral restrictions on the methods that may be used? What individuals are morally responsible for wartime decisions, and to what degree? Discussion of these issues will be used to elucidate larger problems in ethical theory. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 240 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 360 or PHIL 365 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 320  The Problem of Human Freedom  3 Credit Hours
A critical examination of the idea of freedom: the free will/determinism debate, moral and legal responsibility, punishment, and the relationship between metaphysical and social freedom. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 240 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 350 or PHIL 340 or PHIL 350 or PHIL 360 or PHIL 365 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 327  Kierkegaard & Nietzsche  3 Credit Hours
This course will explore the philosophical views of Kierkegaard and Nietzsche, examining the interconnections and differences between these two thinkers as well as each one's contributions to philosophy and psychology. The course will focus on both philosophers' emphasis on the individual and how that emphasis arose as a response to the social, political and economic changes in the 19th century and anticipated and influenced philosophical developments in the 20th century, in particular existentialism.

PHIL 335  Philosophy of Law  3 Credit Hours
An examination of some of the important philosophical issues relevant to law and legal theory, including legal punishment, legal responsibility, and the relationship between law and morality. Both classical and contemporary writings will be studied. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 240 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 330 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 340  Analytic Philosophy  3 Credit Hours
An introduction to philosophy as the analysis and evaluation of fundamental concepts and principles occurring in ordinary life and in the sciences. While analytic philosophy in the twentieth century is emphasized, its antecedents in the history of western philosophy will be examined. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor. (OC).
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 240 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 350  Symbolic Logic  3 Credit Hours
This course will examine the central themes in modern symbolic logic including consistency, truth-functionality, sentential first-order predicate logic, and the logic of identity and possibility. These themes and their relation to the wider philosophical context will be discussed. (F,W).

PHIL 360  Philosophy of Technology  3 Credit Hours
A study of both the history of, and current issues in, the philosophy of technology. This course will examine the deeper meaning and implications of our modern technological society. Questions examined include: What is the definition and nature of technology? How did the concept originate in Western thought? What is the relationship between modern industrial technology and the 'mechanistic' worldview? How do Western religious beliefs influence our attitudes about technology? Is technological progress socially determined, or is it culturally independent? In what ways has our technological society been supportive of, or detrimental to, overall human well-being? Students will cover both classic and contemporary readings.

PHIL 365  Philosophy of Religion  3 Credit Hours
A philosophical examination of basic religious problems, such as the nature and grounds of religious belief, the existence and nature of God, human immortality, the relations of religion and science, and the nature of religious language. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): RELS 120 PHIL 100 or PHIL 120 or PHIL 233 or PHIL 240 or PHIL 240 or PHIL 241 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 330 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 369  Philosophy of Art  3 Credit Hours
An examination and critique of both traditional and contemporary theories of art as well as an examination of theories of the aesthetic including theories of beauty, taste, and the aesthetic attitude. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor. (OC).
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 240 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490 or PHIL 371
PHIL 370  Philosophy of Mind  3 Credit Hours
A study of current philosophical work in the area of consciousness studies examining the nature and function of human consciousness and the problem of reconciling an objective, scientific view of consciousness with our subjective experience of it. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 355 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 371  Philosophy in Literature  3 Credit Hours
An exploration of philosophical problems as they are encountered in works of literature. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 355 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 375  Problems of Human Knowledge  3 Credit Hours
A study of issues and problems that arise in considering the nature of knowledge: an examination of traditional theories of knowledge and recent critiques of those theories. Readings of classical and contemporary texts. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 355 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 590

PHIL 380  Theories of Reality  3 Credit Hours
A critical examination of philosophical positions that claim to distinguish between what is real and what is apparent; an evaluation of the basic principles of philosophy and of extra-philosophical disciplines. Readings of classical and contemporary texts. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 355 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 384  Feminist Philosophy  3 Credit Hours
Feminists working in philosophy, most notably in the 19th and 20th centuries, have altered the traditional philosophical canon by first, recovering women philosophers who were essentially erased from the history and secondly, by extending and contributing to the standard questions of philosophy. For example, one central question of philosophy: "What can we know with certainty?" has been transformed through a feminist lens and reinterpreted as "What does one's gender, social location, and cultural framework contribute to what one knows?" In this course we will look at the variety of feminist philosophical theories with a focus on epistemology, metaphysics, and ethics.
Prerequisite(s): PHIL 100 or WST 275 or WGST 275 or WGST 303 or HUM 275 or ANTH 275 or PSYC 275 or SOC 275 or HUM 303 or ANTH 303 or PSYC 303 or SOC 303

PHIL 390  Topics in Philosophy  3 Credit Hours
Examination of problems and issues in selected areas of philosophy. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. Typical topics: Philosophy of Language, Minds and Machines, Moral Responsibility. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 390Q  Topics in Philosophy  3 Credit Hours
In this course students will explore the ways that cognitive and affective aspects of social identities (race, gender, socio-economic class, sexual orientation, dis/ability) intersect with issues of social power and privilege to make critical thinking and critical dialogue particularly challenging. We will consider how the history of 'argument' in Western philosophy has contributed to the challenges of social identity debates and we will explore a variety cognitive biases and logical fallacies as well as strategies for effectively countering these biases and fallacies.

PHIL 399  Independent Studies  1 to 3 Credit Hours
Readings or analytical assignments in philosophy in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor. (F,W).

PHIL 415  Existentialism and Its Sources  3 Credit Hours
An exploration of the literary sources of existentialism and a critical study of selected philosophical texts. Particular themes - death, subjectivity, alienation, commitment, and freedom - will be considered in an attempt to formulate an existential conception of the human condition. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 441  Social and Political Phil  3 Credit Hours
An analysis of some fundamental problems of political and social philosophy, with special attention to the way in which theory may function as a guide to specific policies. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490

PHIL 444  Argumentation and Critical Thinking  3 Credit Hours
An analysis of selected arguments and critical thinking strategies for effectively countering these biases and fallacies.

PHIL 445  Topics in Philosophy  3 Credit Hours
In this course students will explore the ways that cognitive and affective aspects of social identities (race, gender, socio-economic class, sexual orientation, dis/ability) intersect with issues of social power and privilege to make critical thinking and critical dialogue particularly challenging. We will consider how the history of 'argument' in Western philosophy has contributed to the challenges of social identity debates and we will explore a variety cognitive biases and logical fallacies as well as strategies for effectively countering these biases and fallacies.
PHIL 442 Medical Ethics 3 Credit Hours
An examination of moral issues in medicine. Among the problems to be considered are truth-telling and paternalism in the doctor-patient relationship, psychosurgery and behavior control, death and euthanasia, the allocation of scarce resources, and genetic counseling and control. Specific attention will be given to ethical theories and to philosophical concepts such as rights, autonomy, and justice. Students cannot receive credit for both PHIL 442 and PHIL 542. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 445 or PHIL 490.

PHIL 444 Contemporary Ethical Issues 3 Credit Hours
An intensive study of a topic in recent ethical theory. Topics will vary with each offering. Among the topics: ethics and law, utilitarianism, virtue theory, theories of justice, morality and emotion, ethics and partiality. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 445 or PHIL 490.

PHIL 485 Philosophy of Science 3 Credit Hours
A critical study of the foundations of the sciences, natural and social, with emphasis on the following topics: the nature of scientific method, theories and explanation, probability and determinism, the unity of the sciences. Students electing this course must have successfully completed a previous course in philosophy or have permission of instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 335 or PHIL 340 or PHIL 350 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 445 or PHIL 490.

PHYS 100 Perspectives in Physics 3 Credit Hours
An introductory look at the concepts and methods of physics as well as the role of physics in society today. Examines some of the problems facing physicists and the ways they go about tackling them. Problem solving includes the use of mathematics in physical situations. The course is designed for non-concentrators interested in physics. Three hours lecture. (S).
PHYS 305  Contemporary Physics  3 Credit Hours
An introduction to contemporary topics in physics of interest to science, mathematics and engineering students. Topics include relativity, and quantum mechanics and their applications to atoms, molecules, nuclei, solid state phenomena, and cosmology. Three hours lecture. (W).
**Prerequisite(s):** (PHYS 126 or PHYS 151) and (MATH 116 or MPLS with a score of 215)

PHYS 314  Computational Physics  3 Credit Hours
An introduction to numerical and computational techniques in physics and astronomy. Topics include an introduction to scientific computing, fitting data to a model, visualizing results, plotting, error analysis, and writing software to solve physical problems. Applications will be selected from a variety of subfields, including: classical mechanics, statistical physics, quantum physics, electromagnetism, chaos, biophysics, and astrophysics. Three hours lecture.
**Prerequisite(s):** PHYS 151 and (MATH 205* or MATH 215*)

PHYS 320  Environmental Physics  3 Credit Hours
A survey of the applications of physical principles to the environment, and to the conversion, transfer, and use of energy. Problems of transportation, meteorology, and thermal pollution are included. Three hours lecture. (OC).
**Prerequisite(s):** PHYS 126 or PHYS 151

PHYS 360  Instrumentation for Scientists  4 Credit Hours
An introduction to the principles of electronic instrumentation used in scientific research. Methods of converting physical measurements into electronic signals by means of electrical circuits, transistors, digital and analog integrated circuits will be discussed. Digital computers as general purpose laboratory instruments will be explored. Students will complete individual projects. Three hours lecture, four hours laboratory. (F).
**Prerequisite(s):** PHYS 126 or PHYS 151

PHYS 370  Intro to Mathematical Physics  3 Credit Hours
As introduction to those mathematical methods that are widely used in understanding the physical phenomena exhibited by Nature. Topics include vector analysis, linear algebra, complex variables, Fourier analysis, and differential equations. Emphasis is on the application of these techniques to physical problems of interest to students in mathematics, engineering, and the physical sciences. Three hours lecture. (AY).
**Prerequisite(s):** (MATH 205 or MATH 215 or MPLS with a score of 215) and PHYS 151

PHYS 390  Current Topics in Physics  3 Credit Hours
A lecture course in a topic of current interest in physics. Topics vary and are announced in the current Schedule of Classes. Three hours lecture. (OC).
**Prerequisite(s):** PHYS 305*

PHYS 401  Mechanics  3 Credit Hours
A study of the classical physics of the motions of single particles, systems of particles, and rigid bodies. Topics include central force laws and planetary motion, collisions and scattering, rigid body motion, oscillations, Lagrange's equations, and Hamilton's principle. Three hours lecture. (F).
**Prerequisite(s):** (MATH 205 or MATH 215 or MPLS with a score of 215) and PHYS 151

PHYS 403  Electricity and Magnetism  3 Credit Hours
The study of electrostatics, magnetostatics and electrodynamics using Maxwell's equations. Of interest to engineers and physical scientists, the course focuses on the logical development of Maxwell's equations from experimental laws and on their application to electromagnetic phenomena. Three hours lecture. (W).
**Prerequisite(s):** (MATH 205 or MATH 215 or MPLS with a score of 215) and PHYS 151

PHYS 405  Optics  3 Credit Hours
An introduction to wave and ray optics for students in engineering, mathematics, and the physical sciences. Topics of discussion include reflection and refraction at dielectric surfaces, lenses and mirrors, fiber optics, polarization, interference, and Fraunhofer and Fresnel diffraction. Additional material on coherence, Fourier optics and spatial filtering, and holography is presented as dictated by students' needs and interests, and as time permits. Three hours lecture. (AY).
**Prerequisite(s):** (MATH 205 or MATH 215) or MPLS with a score of 215 and PHYS 151

PHYS 406  Thermal and Statistical Physic  3 Credit Hours
A study of thermodynamic phenomena using the methods of statistical mechanics. Designed for engineering students and concentrators in mathematics and the physical sciences; extensive application is made to physical, chemical and biological systems and phenomena, including solids, liquids, gases, paramagnets, thermal radiation, DNA, hemoglobin, semiconductors, heat engines, chemical reactions, and phase transitions. Three hours lecture. (F).
**Prerequisite(s):** (MATH 205 or MATH 215 and PHYS 151 or MPLS with a score of 215)

PHYS 416  Biological Physics  3 Credit Hours
A course based on the methodology of physics with particular emphasis on the applications of theoretical models and experimental methods to biological objects and systems. Topics may include bioelectricity, membranes, polymers, and physical chemistry of macromolecules. Three hours lecture. (OC).
**Prerequisite(s):** MATH 205 or (MATH 215 and PHYS 151)

PHYS 421  Astrophysics  3 Credit Hours
A calculus-based introduction to several major areas of modern astrophysics for students concentrating in the physical sciences, mathematics, and engineering. Topics to be covered include observable properties of stars and star systems, stellar structure and evolution, binary systems and galactic x-ray sources, galaxies and quasars, and cosmology. Three hours lecture. (AY).
**Prerequisite(s):** (PHYS 305 or ASTR 301 or ASTR 330) and (MATH 305 or MATH 215)

PHYS 453  Quantum Mechanics  3 Credit Hours
Concepts of quantum mechanics with applications of the Schrödinger wave equation to the simpler atoms, molecules, and nuclei. Topics of current interest to physicists, chemists, and biologists are discussed. Three hours lecture. (F).
**Prerequisite(s):** PHYS 305 and MATH 151

PHYS 457  Atomic and Nuclear Physics  3 Credit Hours
Topics in modern atomic physics such as optical and radio-frequency spectroscopy and scattering of atoms and electrons are considered. An introduction to nuclear physics, including nuclear interactions and structure, radioactive decay, fission, and fusion. Three hours lecture. (AY).
**Prerequisite(s):** (MATH 205 or MATH 215 or MPLS with a score of 215) and PHYS 305
PHYS 459  Advanced Physics Laboratory  2 Credit Hours
Experimental techniques will be introduced with emphasis on modern physical measurements. Pre-developed apparatus will be available for an implementation of several standard experiments. General facilities will also be available for selected experiments designed by the students to meet individual needs. Instruction in the planning of experiments and the organization and presentation of results will be included. Eight hours laboratory. (Offered Fall Term only.)
Prerequisite(s): PHYS 305 and PHYS 403

PHYS 460  Advanced Physics Laboratory  3 Credit Hours
Experiments in both classical and modern physics using contemporary techniques. Commercial apparatus is used in several experiments. Advanced students are encouraged to initiate and conduct their own experiments. Instruction in the planning of experiments and the presentation of oral and written reports is included. One hour recitation, six hours laboratory. Course may be repeated for credit. (W).
Prerequisite(s): PHYS 305* and PHYS 360

PHYS 463  Solid State Physics  3 Credit Hours
A study of the structure and properties of the solid state of matter with emphasis on crystalline solids, crystal structures, lattice dynamics, electrons in metals and semiconductors, and dielectric and magnetic properties of solids. Three hours lecture. (AY).
Prerequisite(s): (MATH 205 or MATH 215 or MPLS with a score of 215) and PHYS 305

PHYS 490  Topics in Physics  1 to 3 Credit Hours
A lecture course in a topic of current interest in physics. Topics vary and are announced in the current Schedule of Classes. One to three hours lecture. (OC).

PHYS 495  Off-Campus Research  1 to 3 Credit Hours
Participation in ongoing experimental research at an off-campus laboratory. Assignments made by cooperative or internship agreement between the research laboratory, the student, and the physics concentration advisor. Course may be repeated for credit. Four to twelve hours laboratory. Permission of concentration advisor. (F,W,S).

PHYS 497  Seminar in Physics  1 to 3 Credit Hours
Current topics from various areas in pure and applied physics are reported upon by students, faculty, and guest lecturers. Topics presented will vary from year to year. Course may be repeated for credit. One to three hours seminar. (W).

PHYS 498  Directed Studies in Physics  1 to 3 Credit Hours
Special topics in physics chosen by agreement between student and instructor. Course may be repeated for credit. Permission of instructor. (F,W,S).

PHYS 499  Laboratory Studies in Physics  1 to 3 Credit Hours
Experimental studies in physics selected by agreement between student and instructor. Four to twelve hours laboratory. Course may be repeated for credit. Permission of instructor. (F,W,S).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Political Science (POL)

POL 101  Intro to American Government  3 Credit Hours
An introduction to the national institutions and political processes of American government. Potential topics include: the Constitution, the founding, federalism, public opinion, interest groups, political parties, political institutions, civil rights, civil liberties, or public policy. (F, W).

POL 201  Intro Comparative Government  3 to 4 Credit Hours
An introduction to the world’s major forms of government: democracies and non-democracies, their institutions, and the processes that affect their stability and the transitions between them. (F, W).

POL 205  Intro to Public Administration  3 Credit Hours
Introductory study of the administrative phase of public policy development. Such aspects of administration as personnel and fiscal management are considered and related to issue of accountability, public responsibility, and notions of public interest. (F,W).

POL 250  Intro to Political Theory  3 Credit Hours
This course examines the role of political theory as a tool for the critical analysis of political reality. It analyzes several dominant political conceptions such as justice, equality, democracy, civility, and authority. (YR).

POL 260  The Arms Race and War  3 Credit Hours
An examination of the courses and consequences of the contemporary arms race. Special attention is given to nuclear weapons, the risk of war, and the prospect for arms control and disarmament. (YR).

POL 300  Political Analysis  3 Credit Hours
Introduction to research design, data collection and analysis, sampling, and statistics for social scientists. (F,W).

POL 302  The Theory of the Law  3 Credit Hours
A comprehensive introduction to the theoretical foundations and the political functions of law, with special emphasis on the different moral justifications of law; the relation between law and justice; the relation between law and freedom; due process and fairness in any legal system. This course is designed to have special relevance for those considering law as a career. (OC).

POL 303  Justice  3 Credit Hours
An analysis of theories of justice. The relation between morality and political power is considered. (AY).

POL 304  American Political Thought  3 Credit Hours
The principal American contributions to political theory. (OC).

POL 305  Race/Justice/Freedom in Amer  3 Credit Hours
This course examines the social and political thought of selected African American political thinkers. Its focus will be to assess the origins, development and implications of their ideas in the context of the changing dynamics of racial politics in America and the world. (AY).

POL 306  Political Ideologies  3 Credit Hours
An examination of significant modern ideologies, especially liberalism, conservatism, and Marxism. (YR).

POL 307  Marxist Thought  3 Credit Hours
The theories of selected communist thinkers and the implications that these ideas have for the contemporary world. (OC).
POL 308  Moral and Political Dilemmas  2 to 3 Credit Hours
The course focuses on the tensions and relations between personal morality and political action by examining the moral aspect of contemporary policy issues such as the right to life, environmental policy, and discrimination. (YR).

Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

POL 309  Ancient Political Theory  3 Credit Hours
An examination of seminal ancient and classical thinkers and texts such as Socrates, Plato, Aristotle, and the Bible on significant themes pertaining to justice, government, religion, and philosophy. (YR).

POL 310  Modern Political Theory  3 Credit Hours
The course studies the origins of modern political theory and practice, and the development of "modern" democratic liberalism. (YR).

POL 311  Int Group and Pol Process  3 Credit Hours
An examination of the structure, techniques, and internal politics of interest groups, their role in policy making and relationship with political parties, legislative and executive bodies, and administrative agencies. (YR).

POL 312  Legislative Process  3 Credit Hours
An analysis of legislative systems with emphasis on the changing realities of congressional and state power and policy making. (YR).

POL 313  American State Government  3 Credit Hours
A comparative analysis of politics, political processes, and governmental institutions in American state and local governments. (YR).

POL 314  Issues in Amer Pol Thought  3 Credit Hours
Fundamental and recurring issues in American political thought, as they appear in the most influential and representative works on public affairs since the end of the Civil War. Topics may include Social Darwinism and its progressive critics, "revisionist" critiques of the Constitution, political aspects of philosophic pragmatism, the "revolt against formalism" in law, political doctrines of Progressivism and the New Deal, mid-century changes in progressive liberalism, the revival of classical liberalism and its "fusion" with traditional conservatism, political-philosophical aspects of environmentalism, the political thought of the civil rights movement and its critics, feminism and its diversification, and the capacities of American political culture and institutions to conduct a sustained opposition to terrorism. The course concentrates on analyzing extended works of reasoning in books, essays, judicial opinions and other public documents. POL 304, American Political Thought, is recommended as a forerunner to this course.

Restriction(s):
Can enroll if Level is Undergraduate

POL 315  The American Presidency  3 Credit Hours
The course examines the expansion of presidential powers, focusing on the constitutional and political development in the president’s role as chief executive, legislative leader, and administrative head of state. Topics include: separation of powers, presidential selection, impeachment, relations with Congress and bureaucracy, emergency powers, presidential character, and leadership. (YR).

POL 316  The American Judicial Process  3 Credit Hours

POL 318  Criminal Law  3 Credit Hours
A survey of landmark Supreme Court decisions in the field of criminal law and related issues of criminal justice. State court decisions when applicable may also be included. (AY).

POL 320  Politics and Human Nature  3 Credit Hours
An analysis of the political process in terms of the attitudes, values, and behavior of human beings. (OC).

POL 322  Mich Gov, Pol, & Publ Policy  3 Credit Hours
This course explores government, politics, and public policy in Michigan. It examines the major governmental and nongovernmental institutions involved in state level policy making, the processes used by these institutions to influence public policy, and the policies that emerge through their interaction. (YR).

POL 323  Urban Politics  3 Credit Hours
A survey of the political process in urban areas giving special attention to the changing role of cities in American politics. (YR).

POL 325  Environmental Politics  3 Credit Hours
An examination of policy making about problems affecting the environment, at a global, national, and local scale. (AY).

POL 326  Presidential/Congress Election  3 Credit Hours
This course will focus on the most recent and upcoming presidential and congressional elections from the perspective of how they fit into and help illustrate the broad theoretical frameworks and findings on elections and voting behavior in political science. Topics will include nominating and general election campaigns, campaign financing, participation, party coalitions, and news media. (OC).

Prerequisite(s): POL 101

POL 327  Pol Parties and Elections  3 Credit Hours
A basic survey of American political party organization and the American election system. The course sometimes includes an examination of parties and elections in comparative perspective. (YR).

POL 328  Pub Opinion and Press Groups  3 Credit Hours
A study of the nature and formation of public opinion, the techniques for its measurement, and its role in the political system. (AY).

POL 329  Politics and the Media  3 Credit Hours
This course investigates the relationships between the news media and our major political institutions; the structure of the modern media; their influence on public opinion; their effects on our party and electoral system; their role in defining political reality and agenda setting; and their influence upon our political institutions and the policy-making process. (YR).

POL 333  Citizens and Bureaucrats  3 Credit Hours
The focus of this course is citizen participation in administrative behavior. Attention is paid to the perspectives of both citizens and bureaucrats. The course uses broad concepts of political participation and organization behavior. (YR).

POL 334  Organizing and Leadership  3 Credit Hours
The purpose of this course is to introduce students to the theory and practice of local democratic action. The course draws on the history, practices, and lessons of the American community organizing tradition and the civil rights movement and relates those past experiences to current issues. In collaboration with local community partners, students learn about effective methods of civic engagement and leadership, as currently practiced in metropolitan Detroit.

POL 340  Federalism  3 Credit Hours
Federalism is considered from both legal and operational perspectives. Students examine traditional views of Federalism as well as empirical and technical studies about intergovernmental relations at national, state, and metropolitan levels. (YR).
Restriction(s): 

Prerequisite(s): 

POL 341 Canadian Politics 3 Credit Hours 
A survey of Canadian politics and government. It provides an understanding of the Canadian political tradition and some of the concerns of contemporary Canada; includes a focus on the cultural and socioeconomic bases of the political system, the development of constitutional structures, the scope of public policy and the dynamics of policy process. (OC).

POL 350 Pol of the Developing Areas 3 Credit Hours 
A comparative study of political development, political and governmental structures, and conflict patterns, especially of an ethnic nature. (AY).

POL 355 Religion and Politics 3 Credit Hours 
The primary focus of the course is on political movements or systems that take a religious form or have a religious base or use a religiously-rooted ideology. Possible themes or cases covered include the Catholic Church as a political system, Evangelical politics in America, religious uprisings, and Islamic political movements. (AY).

POL 360 American Policy Process 3 Credit Hours 
An analysis of political decision-making processes on a range of issues with an emphasis on how various political actors attempt to influence the process to their own advantage. (YR).

POL 361 American Foreign Policy 3 Credit Hours 
Survey of American foreign policy in various regions of the world. Instances of policy making, such as the Cuban missile crisis, are explored in detail. (YR).

POL 362 Women, Politics, and the Law 3 Credit Hours 
An examination of the political behavior of women in American politics. Included is an analysis of the legal and legislative demands of American women. (AY).

POL 363 Cr Just Policy and Admin 3 Credit Hours 
The structure and processes of criminal justice administration in America, including analysis of current issues in police behavior, courts, and corrections. (AY).

POL 364 Health Pol and Administration 3 Credit Hours 
Structure and processes of health administration in America, including analysis of current issues in health policy. (AY).

POL 365 Energy Policy 3 Credit Hours 
The course reviews the important elements in energy policy and a brief history of that development. It also considers what factors have been important in those developments. Finally, there is discussion of the potential for policy developments at all levels of government. (OC).

POL 367 Fiscal Policy and Budgeting 3 Credit Hours 
This course is intended to introduce students to the fundamental elements of the federal budget. During the class we will examine the budgetary process and how it has evolved over time. Contemporary proposals to reform the budget process will be considered as well. Careful attention will also be paid to important components of the federal budget including entitlements, defense spending, and discretionary non-defense spending. We will consider various policy reforms as legislators seek to find ways of maintaining popular programs while controlling costs. Finally, the course will conclude by examining some famous budgetary conflicts in recent American history. 
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Level is Undergraduate

POL 370 Communist & Post-Communist Sys 3 Credit Hours 
China and Russia are the focal points of this course. Among questions explored are: How are Russia and China ruled? Are their forms of government and their economic systems "moderating" and becoming more like those of the United States? How successful have these governments been in meeting the needs of the people? (OC).

POL 371 Problems in Intl Politics 3 Credit Hours 
Present-day problems in world politics, with particular emphasis on the great powers and on areas and events of political conflict in the contemporary world. (YR).

POL 375 Great Pwrs Comp and Conflict 3 Credit Hours 
This course focuses on the foreign policies of major international powers, such as China, Russia, and the Western European democracies. Attention is also paid to the causes of the rise and decline of major powers. (YR).

POL 385 Middle East Politics 3 Credit Hours 
The course focuses on the Israeli-Palestine conflict in its domestic, regional, and world-wide dimensions. (AY).

POL 390 Topics in Political Science 3 Credit Hours 
Examination of problems and issues in selected areas of political science. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

POL 390A Topics in Political Science 3 Credit Hours 
TOPIC: Theoretical Perspectives on Gender and Difference. Will explore major developments and inter-disciplinary perspectives within feminist theory. It will examine feminist innovations in social, political, and cultural theory and in feminist epistemology. It will also consider some of the fundamental questions these theories and methods raise about the origins of gender, the development and maintenance of patriarchy, and the inter-sections of gender, race, class, disability, age, and sexuality as categories of analysis and as bases of oppression or privilege. 
Prerequisite(s): WST 275

POL 390B Topics in Political Science 3 Credit Hours 
TOPIC: Foundations of the American Experience The course considers a body of readings that have proved highly influential to American political, philosophical, and scientific thought. Beginning with ancient philosophies and religions, early scientific theories, and the classical philosophies of Socrates, Plato, Aristotle, and the Stoics, the course concludes with the scientific, social, and political revolutions of the 17th and 18th century. The course argues that through the historical examination of philosophical and scientific "giants", a better understanding and appreciation of the modern-day American experience can be gained.

POL 390J Topics in Political Science 3 Credit Hours 
Topic: Freedom of Religion in America. This course is designed to explore a variety of historical and contemporary issues dealing with freedom of religion as guaranteed in the First Amendment of the Bill of Rights. Special attention will be given to the landmark decisions of the Supreme Court interpreting the Establishment and Free Exercise clauses of the First Amendment and the legal and political controversies raised by these decisions. The course is designed to lead to a greater understanding of the symbiotic relationship between religion and politics, the importance of religious liberty to democracy, and the inevitable tensions between religious groups, and between church and state in a free society. 
Prerequisite(s): HIST 365

POL 398 Independent Studies 1 to 3 Credit Hours 
Readings or analytical assignments in Political Science in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 399</td>
<td>Independent Study</td>
<td>1</td>
</tr>
<tr>
<td>POL 413</td>
<td>American Constitutional Law</td>
<td>3</td>
</tr>
<tr>
<td>POL 414</td>
<td>Civil Rights and Liberties</td>
<td>3</td>
</tr>
<tr>
<td>POL 415</td>
<td>Problems in Constitutional Law</td>
<td>3</td>
</tr>
<tr>
<td>POL 416</td>
<td>Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>POL 417</td>
<td>Constitution &amp; National Security</td>
<td>3</td>
</tr>
<tr>
<td>POL 418</td>
<td>Supreme Court and Religion</td>
<td>3</td>
</tr>
<tr>
<td>POL 445</td>
<td>Environmental Law</td>
<td>3</td>
</tr>
<tr>
<td>POL 440</td>
<td>International Security Affairs</td>
<td>3</td>
</tr>
<tr>
<td>POL 450</td>
<td>Revolution</td>
<td>3</td>
</tr>
<tr>
<td>POL 451</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 452</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 453</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 454</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 455</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 456</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 457</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 458</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 459</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 460</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 461</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 462</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 463</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 464</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 465</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 466</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 467</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 468</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 469</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 470</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 471</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 472</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 473</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 474</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 475</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 476</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 477</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 478</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 479</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 480</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 481</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 482</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 483</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 484</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 485</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 486</td>
<td>Peace and War</td>
<td>3</td>
</tr>
<tr>
<td>POL 487</td>
<td>Peace and War</td>
<td>3</td>
</tr>
</tbody>
</table>

**POL 399 Independent Study**
Readings or analytical assignments in political sciences in accordance with the interests and needs of students enrolled and agreed upon by the instructor and student. Written permission of instructor required.

**POL 413 American Constitutional Law**
A major theme of this course is the development of the Constitution as shaped by the Supreme Court, Congress, and the president. The course examines the constitutional interpretation of government authority which includes such topics as judicial review, appointments, executive privilege, war power, federalism, commerce power, taxing and spending power, and substantive due process. (AY).

**POL 414 Civil Rights and Liberties**
An analysis of the Bill of Rights and the 14th Amendment, with particular emphasis upon recent landmark or controversial Supreme Court decisions dealing with freedom of speech and religion, rights of criminal defendants; cruel and unusual punishment, right to privacy; civil rights and equal protection clause; and apportionment. (YR).

**POL 415 Problems in Constitutional Law**
Selected areas of constitutional law of current interest. Topics to be announced. (AY).

**POL 416 Criminal Law**
A survey of the major judicial, executive, and legislative decisions in the field of criminal law. (AY).

**POL 417 Constitution & National Security**
This course focuses on the issue of national security and how the federal government has used power to protect its citizens. It analyzes relevant national security issues in order to understand how government action is constrained by the Constitution and social norms. The course examines the historical development of national security in the United States including habeas corpus, wiretapping, military tribunals, state secrets, and extraordinary rendition. Particular close attention is paid to the modern development of national security. The emphasis in reading will be on cases, executive orders, congressional hearings, and statutes. For graduate credit elect POL 517.

**POL 418 Supreme Court and Religion**
A study of the major landmark decisions of the Supreme Court interpreting First Amendment guarantees of religious liberty. The course emphasizes case law defining the meaning of the Establishment Clause and the Free Exercise Clause and their significance for religious liberty in America.

**POL 445 Environmental Law**
A survey of common law theories and analysis of environmental statutes from a functional perspective. The course also includes environmental law aspects of constitutional law, administrative law and criminal law, as well as the public trust doctrine and public lands. Student cannot receive credit for both ENST 350 and ENST/POL 445.

**POL 450 Revolution**
A consideration of violent political change and the conditions which promote it. The course covers both revolutionary theories and empirical research. Specific revolutions are considered. (YR).

**POL 451 Peace and War**
An examination of the causes of war and the means of securing peace.

**Prerequisite(s):** HIST 365

**Restriction(s):**
Can enroll if Attribute is Honors Program

**POL 460 Science, Tech & Pub Policy**
This course explores the intersection of science, technology, and public policy. Scientific knowledge and technological innovations are exceptionally powerful resources for policy-makers and for societies; they also pose great challenges and risks. This course will look at how science and technology affect the pursuit of policy goals in areas such as public health, environmental sustainability, economic growth, and national security. Students will not receive credit for more than one of POL 460, POL 560, and PPOL 560.

**Restriction(s):**
Cannot enroll if Class is Graduate

**POL 465 Criminal Law**
A survey of the major judicial, executive, and legislative decisions in the field of criminal law. (AY).

**POL 466 Politics & Policies Soc Welfare**
The course examines the relationship between politics and public policy as related to the provision of social welfare programs in the United States.

**Restriction(s):**
Cannot enroll if Class is Freshman

**POL 467 Food Politics and Policy**
How do politics affect our food at the global, national and urban/local scale? This course examines close historical relationships between politics and food; the politics of conventional agriculture and food policy; and alternative agriculture movements and food systems, with a particular emphasis on urban food policy and urban food systems.

**POL 471 American Foreign Policy I**
American foreign policy in Western Europe, Russia, and Latin America. (OC).

**Restriction(s):**
Can enroll if Class is Junior or Senior

**POL 472 American Foreign Policy II**
American foreign policy in the non-western world. (OC).

**Restriction(s):**
Can enroll if Class is Junior or Senior

**POL 473 International Security Affairs**
International Security is the branch of world politics concerned with the threats, primarily military in nature, to the peace and security of the nation, states, and the international community. (AY).

**Restriction(s):**
Can enroll if Class is Junior or Senior
**POL 481**  Terrorism & US Natl Security  3 Credit Hours

The United States responded to the events of September 11, 2001 with a series of unprecedented action under the umbrella of homeland security and the War on Terror. This course examines American National security policy by asking a few key questions: What is terrorism and how does it threaten the United States? How has the United States responded to the threat of terrorism over time? What have the consequences of US policy been to date? Finally, how would we balance a desire for security with our desire for civil liberties and ethical action?

Prerequisite(s): POL 101 or CRJ 468

Restriction(s):
Can enroll if Level is Undergraduate

**POL 484**  Revitalizing Cities  3 Credit Hours

What have we done to address decline in city neighborhoods and downtowns? Why? How has it worked? Why? What's the hope for the future? This course uses a public policy lens to engage students in a quest for answers to these questions. (YR)

**POL 487**  Comparative Enviro Policy  3 Credit Hours

This course explores environmental policy as a result of political processes involving diverse participants and entailing movement through several stages - from defining an issue as an environmental problem to placing it on political agenda and then receiving a response at domestic governmental or international levels. This course analyzes environmental issues from a cross-cultural and comparative perspective, with a particular attention given to political institutions, political change, levels of development, political culture, public participation, and international commitments that shape the nature and dynamics of environmental politics and policy in different countries. Course POL 101 is recommended before taking this course.

Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

**POL 489**  Seminar in Urban Politics  3 Credit Hours

Selected topics in urban politics.

**POL 490**  Sem in Public Administration  2 to 3 Credit Hours

Selected topics in public administration.

**POL 491**  Seminar in Political Science  3 Credit Hours

Selected topics in political science. Title as listed in Schedule of Classes changes according to content. Course may be repeated for credit when topics differ. (AY)

**POL 492**  Seminar in Political Analysis  3 Credit Hours

An advanced in-depth look at the problems and techniques of empirical research. Gives special attention to research design, data collections, measurement, and validity. Statistics for social scientists will also be covered. (OC).

**POL 494**  Internship Seminar  3 Credit Hours

This is the academic part of the internship. Students meet with other interns once a week to analyze political dynamics within their placements. Students are required to keep journals, prepare papers and reports, and do other written work. Anyone taking POL 495 or 497 is required to take POL 494. It may not be taken by itself. Repeatable if topic differs. Only six hours of internship credit is allowable toward concentration requirement.

**POL 495**  Public Affairs Internship  3 to 6 Credit Hours

Field study placements in national, state, county, local government or private agencies. Primarily for junior or senior political science concentrators or other qualified applicants. Maximum of 20 students selected each term. Students must also register for POL 494. Only six hours of internship credit is allowed toward concentration requirement.

**POL 496**  Canada Internship  3 or 6 Credit Hours

Field study placements in Canada at national, provincial, or local levels, or in private agencies. Course is offered only in spring semester. Primarily for junior or senior political science concentrators, or other qualified applicants. Students must also register for POL 494. Only six hours of internship credit is allowed toward concentration requirement.

**POL 497**  Washington, D.C. Internship  3 to 6 Credit Hours

Field placements in Washington, D.C. Course is offered only in summer semester. Primarily for junior or senior political science concentrators or other qualified applicants. Only six hours of internship credit is allowed toward concentration requirement.

**POL 498**  Directed Studies  1 to 6 Credit Hours

Directed individual study of any subject agreed upon by the student and the instructor. May not duplicate a formal course offering. (OC).

**POL 499**  Directed Studies  1 to 6 Credit Hours

Directed individual study of any subjects agreed upon by the student and the advising instructor, which shall not duplicate a formal course offering.

* An asterisk denotes that a course may be taken concurrently.

**Professional Education (PDED)**

**PDED 318**  Topics in Education  1 to 3 Credit Hours

An examination, at the undergraduate level, of selected problems, practices or issues in education. The title as listed in the Schedule of Classes may change according to content. Course may be repeated for credit when specific topics differ.

Restriction(s):
Can enroll if Class is Junior or Graduate

**PDED 405**  Sp Ed Legisltn and Litigation  3 Credit Hours

Content traces the historical development of special education through landmark legislation and litigation, parent advocacy, and national economic and social needs. The provisions of federal and state special education mandates, judicial interpretations, and Michigan state guidelines regulating the delivery of educational and vocational services to persons with handicaps will also be addressed.

Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior
PDED 415 Museum Resources for Teaching 3 Credit Hours 
Explores the use of museums as educational resources by elementary and secondary teachers. Various museums in the greater Detroit metropolitan area will be visited and studied. Students will review how to plan educational trips and how to use museum resources in meeting their own particular individual needs. (OC)
Restriction(s):
Can enroll if Class is Undergrad Certification only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

PDED 416 Internship in Museum Education 2 or 3 Credit Hours 
The museum education internship will prepare students with the knowledge and skills they need to plan, implement, and evaluate educational and interpretive programs in the context of museums. The educational functions of museums will be explored. The students will apply their knowledge and experiences to K-12 instruction in the core content areas.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior
Can enroll if College is Education, Health, and Human Services or Arts, Sciences, and Letters

PDED 418 Topics in Education 1 to 3 Credit Hours
This course is intended to introduce students to the characteristics and assessment of persons with ASD, as well as the best practices related to educating students with Autism Spectrum Disorders (ASD). Specifically, students will learn evidence based practices for: assessing students with ASD, creating an appropriate educational environment for students with ASD, and providing academic instruction and behavioral interventions to students with ASD in special education and general education settings. Instruction will emphasize specific assessment and teaching tools and behavior management principles and practices associated with educating K-12 student with ASD.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Undergrad Certification only or Post-baccalaureate Cert only or Undergraduate NCFD or Undergraduate NCFD or Junior or Senior
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

PDED 418BJ Topics in Education 1 Credit Hour
TOPIC TITLE: Transdisciplinary Teaming to Support students with Challenging Behaviors This course explores the concept of transdisciplinary teaming for the purpose of supporting children/youth with challenging behaviors. Topics of study in this course include multi-level systems for preventing and remediating inappropriate behaviors, school-wide, class-wide, and individual research-based interventions including Functional Behavior Assessment (FBA).

PDED 418CB Topics in Education 1 to 3 Credit Hours
TOPIC TITLE: TESOL Abroad: Best Practices for Teaching English to Speakers of Other Languages This course provides international TESOL instructors with the background to the theory and best practices for teaching English in non-English speaking countries for academic and professional purposes. The course is designed to provide TESOL instructors with strategies that can be effectively implemented in their English language courses to promote their students’ English language academic proficiencies.

PDED 425 Educator and the Law 1 to 2 Credit Hours
Designed to familiarize classroom teachers with school law and its implications for educators, pupils, and parents. Consideration will be given to the legal aspects of such matters as physical threats, teacher liability, codes of conduct, discipline, and student rights. (OC)
Restriction(s):
Can enroll if Class is Undergrad Certification only or Junior or Senior
Can enroll if College is Education, Health, and Human Services

Other Content
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Psychology (PSYC)

PSYC 101 Introduction to Psychology 3 Credit Hours
Psychology 101 introduces students to theories and research in the field of psychology. This course focuses on the scientific underpinnings of the field from both the social and natural science perspectives.

PSYC 170 Intro to Psych as a Nat Sci 3 Credit Hours
A treatment of the principles of sensation, perception, maturation, learning, motivation, memory, thought, language, and physiological bases of behavior. (F,W,S).

PSYC 171 Intro to Psych as a Soc Sci 3 Credit Hours
A treatment of the principles of human development, intelligence, motivation, personality theory, social and abnormal psychology, and psychotherapy. (F,W,S).

PSYC 215 Research Skills BSci 1 Credit Hour
Full Title: Research Skills for the Behavioral Sciences: This course teaches foundational research and critical-thinking skills necessary for the success of Behavioral Sciences students (including Anthropology, Psychology, and Sociology) in conducting university-level research projects, papers, and other research assignments. Students will learn important research skills like distinguishing between scholarly and non-scholarly sources of information, using library search tools to find peer-reviewed and scholarly sources, evaluating and analyzing information sources and using them to build informed opinions and arguments, integrating and synthesizing sources, and using sources ethically. Students will learn these skills through lectures, practice and by applying them through a series of assignments. (F, W, S)
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters
PSYC 299 Career in Psychology 1 Credit Hour
This one-credit course for psychology majors provides students with information and skills to help pursue a career in psychology or a related field. The course focuses on career options within each of the major sub-fields of psychology. Psychological research on resumes, interviewing and negotiation skills, and networking is incorporated into the course. Students develop a career plan, write a resume, and complete an e-portfolio. (F)(W)

PSYC 300 Life-Span Developmental Psych 3 Credit Hours
Theoretical issues of psychological development from birth through late adulthood are emphasized, along with issues regarding research methods. Topics include cognitive, intellectual, personality, and social development through the life-span. (YR).
Prerequisite(s): PSYC 101 or PSYC 170 or PSYC 171

PSYC 301 Psych of Infant Development 3 Credit Hours
An examination of current theories and findings concerning physical, social, emotional, and intellectual development of the infant. Topics include genetic and experiential factors affecting prenatal and infant development. Language, cognition, and environmental influences on development. Theory will be related to infant care practices in families.
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 302 Psych of Child Development 3 Credit Hours
An examination of current theories and findings concerning physical, social, emotional, and intellectual development from conception to late childhood. Topics include genetic and experiential factors affecting child development.
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 303 Intro to Women's & Gender Stud 3 Credit Hours
This course provides an interdisciplinary overview of the key theories and topics in Women's and Gender Studies. Special attention is given to how gender intersects with class, race, nationality, religion and sexuality to structure women's and men's lives. Students are also introduced to methods of gender analysis and will begin to apply these methods to topics such as women and health, gender roles in the family, violence against women, and gendered images in the mass media.
Restriction(s):
Cannot enroll if Class is Freshman

PSYC 315 Personality Development 3 Credit Hours
An investigation of the factors involved in the formation of personality and the changes in personality across the life-span. The influence of family, peers, and society will be emphasized. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 320 Social Psychology 3 Credit Hours
An introductory study of the inter-relationships of the functioning of social systems and the behavior and attitudes of individuals. (YR).
Prerequisite(s): PSYC 101 or PSYC 170 or PSYC 171

PSYC 321 Attitude and Social Behavior 3 Credit Hours
An analysis of social attitudes as they relate to personality and to membership in collective structures; the conditions of their formation and modification. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 322 Psychology of Prejudice 3 Credit Hours
A consideration of ethnic (including racial), sexual, and religious prejudice from the psychological point of view, focusing on the mind of both the oppressor and the oppressed. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 325 Psych of Interpersonal Relation 3 Credit Hours
This course presents an overview of theory and research conducted by social psychologists that has been aimed at understanding interactions between individuals. Topics include an exploration of the research process that is used to investigate interpersonal relationships, the processes underlying social perception, friendship, liking, love, close relationships, aggression and violence in interpersonal relationships. (YR).
Prerequisite(s): PSYC 101 or PSYC 170 or PSYC 171

PSYC 363 Cognitive Psychology 3 Credit Hours
Analysis of human perceptual and cognitive functioning from an information-processing point of view. Emphasis will be placed on attention, pattern-recognition, memory, problem-solving and other cognitive processes. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 370 Physiological Psychology 3 Credit Hours
Integration of physiological concepts with behavioral phenomena. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 372 Animal Behavior 3 Credit Hours
Comparative psychology. Descriptive analysis of human and animal behavior. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

Restriction(s): PSYC 170 or PSYC 171 or BIOL 100 or PSYC 101

PSYC 375 Psychology of Language 3 Credit Hours
The nature of human language as seen from the perspective of experimental psychology. The course will also introduce the student to current developments in linguistic theory. (AY).
Prerequisite(s): PSYC 170 or PSYC 171 or LING 280 or PSYC 101

PSYC 381 Prin of Stat and Exper Design 3 Credit Hours
An introduction to basic principles of experimental design and statistical analysis as employed in psychological research. Topics covered include data-gathering, descriptive statistics, hypothesis-testing and one- and two-sample experiments, correlational designs, and one- and two-way analysis of variance. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 390 Topics in Psychology 3 Credit Hours
Examination of problems and issues in selected areas of psychology. Title listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 390A Topics in Psychology 3 Credit Hours
TOPIC TITLE: Sport Psychology. A consideration of research and theory aimed at two objectives: (a) understanding how psychological variables affect physical performance and (b) understanding how participation in sport influences psychological development.
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 391 Topics in Psychology 3 Credit Hours
Examination of problems and issues in selected areas of psychology. Title listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

PSYC 391A Topics in Psychology 3 Credit Hours
TOPIC: Men and Masculinities Review of historical, cross-cultural, and contemporary bases of masculinity. Images of manliness in literature, science, and popular culture.
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate
PSYC 394  Psychology and Theater  3 Credit Hours
The linkages between psychology and theater are analyzed from the perspective of the actor, the audience, and the analyst (both psychotherapeutic and literary). This includes ties between plays and theories of human behavior, psychodrama, and self-insight through performance. Class involves a significant experiential component.
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 3955 Diversity and the Workplace  3 Credit Hours
This course will: 1) discuss gender, race, ethnicity, disability, age, sexual orientation, and appearance as aspects of diversity; 2) examine social values and practices, and organizational policies and procedures that affect or have affected the employment opportunities of underrepresented groups; 3) examine individual (e.g., prejudice, stereotypes), group (e.g., in-groups and out-groups), and organizational (e.g., climate and culture) processes that affect workplace diversity and; 4) discuss "best practices" for promoting an organizational culture that values diversity, along with a diverse workforce.
Prerequisite(s): PSYC 170 or PSYC 171 or WST 275 or OB 354 or HRM 405 or WGST 275 or WGST 303 or PSYC 275 or ANTH 275 or SOC 275 or HUM 275 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303 or PSYC 101

PSYC 398  Independent Studies in Psych  1 to 3 Credit Hours
Readings or analytical research in psychology selected in accordance with the interests and needs of students enrolled and agreed upon by the instructor and student. Permission of instructor. (F,W,S).

PSYC 404  Parent-Child Relations  3 Credit Hours
This course examines parental effects on children and children's effects on parents. Emphasis is placed on how the psychologist can collect additional information on the interactions of such people as parents and their children. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 405  Gender Roles  3 Credit Hours
This course will investigate the development of gender roles in childhood and adolescence due to either innate physiological differences or sociological patterning, the effect of gender roles upon male-female relationships within our society, and the possibility of transcending sociological gender roles in alternate modes of living. Students cannot receive credit for both PSYC 405 and PSYC 505. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or SOC 200 or SOC 201 or PSYC 101
Restriction(s): Cannot enroll if Class is Graduate

PSYC 407  Psychology of Adolescence  3 Credit Hours
Considers adolescence as an interaction of rapid biological and social change. Students lacking the prerequisite may elect course with permission of instructor. Examines the theoretical and empirical literature in some detail. Students cannot receive credit both PSYC 407 and PSYC 507. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 412  Psychology of Aging  3 Credit Hours
This course examines development of the individual from middle adulthood through old age. Special emphasis is given to the understanding of developmental theories and issues in adulthood. Topics include biological basis, socialization, family relationships, personality, and intellectual development in the aging individual. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 415  Lab in Developmental Psych  3 Credit Hours
An examination of research design and methodology as related to developmental psychology. Special emphasis will be given to training students in data collection techniques used in developmental research and in providing practical experience in designing and conducting research. Students cannot receive credit for both PSYC 415 and PSYC 515. (YR).
Prerequisite(s): (PSYC 300 or PSYC 301 or PSYC 303 or PSYC 407 or PSYC 412) and PSYC 381

PSYC 418  Cognitive Development  3 Credit Hours
This course explores theories and methods in cognitive development focusing on Piaget's theory and more recent significant conceptualizations. Topics include stages of cognitive development, types of inferential processes, and the acquisition of world knowledge. Discussions leading to the formation of new research ideas are emphasized. Students cannot receive credit for both PSYC 418 and PSYC 518. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s): Can enroll if Level is Undergraduate

PSYC 421  Group Processes  3 Credit Hours
Topics treated include group cohesiveness, "group think," the social structure of groups, emotional factors in group life, leadership, and the development of groups. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or PSYC 101

PSYC 422  Psychology of Leadership  3 Credit Hours
Analysis of theories and research findings in the field of leadership. Class will participate in and observe leadership-group interactions. Students cannot receive credit for both PSYC 422 and PSYC 522. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 425  Lab in Social Psychology  4 Credit Hours
A broad introduction to research methods in basic and applied social psychology. Students will receive training in construction, implementation, and interpretation of scientific procedures used in the study of social psychology. Topics include: questionnaire construction, experimental design, and various multivariate analytic techniques. (YR).
Prerequisite(s): PSYC 381

PSYC 426  Applied Social Psychology  3 Credit Hours
The field of Applied Social Psychology utilizes social psychological theory and research to understand social problems with the goal of improving social conditions. This course will examine social issues from both macro (social institutions and policies) and micro (interpersonal/ intergroup behaviors and beliefs) perspectives. We will investigate how social institutions such as social policy, mass media, and education impact individuals, families, communities, and the environment. (YR)
Prerequisite(s): (PSYC 101 or PSYC 170 or PSYC 171) and (PSYC 320 or SOC 382 or CRJ 382)
Restriction(s): Can enroll if Level is Undergraduate
PSYC 428  Self & Identity  3 Credit Hours
This course provides an in-depth exploration of the vast body of research concerning psychological perspectives on the self and identity. Through reading academic journal articles pertaining to theories and research findings about the self and identity, students will learn about a) the structure and components of self and identity, b) self-knowledge and self-assessment, c) self-damage, d) self-protection and self-enhancement, and e) aspects of the psychologically healthy self.
Prerequisite(s): PSYC 101 or PSYC 170 or PSYC 171
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services or Engineering and Computer Science or Business

PSYC 4305  Psychology in the Workplace  3 Credit Hours
This course introduces students to some of the core content areas of Industrial/Organizational (I/O) psychology. These content areas include: selection, training, performance appraisal, work teams, job design, motivation, leadership, union-management relations, and stress and health in the workplace. Students cannot receive credit for both PSYC 4305 and PSYC 530. (YR).
Prerequisite(s): HRM 405 PSYC 171 or PSYC 170 or OB 354 or PSYC 101

PSYC 431  Organizational Entry  3 Credit Hours
An in-depth consideration of the psychological aspects of the organizational entry process. Topics to be covered include recruitment, selection, orientation, socialization, and training. (OC).
Prerequisite(s): PSYC 170 or PSYC 171 or HRM 405 or OB 354 or PSYC 101
Restriction(s):
Cannot enroll if Class is Graduate
Can enroll if Level is Undergraduate

PSYC 432  Socialization of the Child  3 Credit Hours
An in-depth consideration of some major social systems that affect the development of the child. Students lacking the prerequisite may elect course with permission of instructor. Students cannot receive credit for both PSYC 432 and PSYC 532. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101
Restriction(s):
Can enroll if Class is Junior or Senior

PSYC 440  Abnormal Psychology  3 Credit Hours
An introduction to the field of psychopathology, the study of mental disorders. Includes exposure to a number of historical and theoretical perspectives, each with their own theories, methodologies, and treatment approaches. Disorders covered will include: anxiety and mood disorders, personality disorders, schizophrenia, sexual disorders, and psychosomatic disorders. Students cannot receive credit for both PSYC 440 and PSYC 540. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 441  Intro to Clinical Psychology  3 Credit Hours
Introduction to the logic, problems, and limitations of clinical observations and inference. Issues in diagnosis and treatment are examined, with an attempt to understand parallels between clinical interpretation and problems in other disciplines. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 442  Child Psychopathology  3 Credit Hours
A review of the major psychological disorders of children from birth to adolescence. These disorders are considered from a clinical and theoretical point of view. In addition to an examination of causes, approaches to treatment and behavior modification are considered.
Prerequisite(s): PSYC 442 and PSYC 542. (YR).

PSYC 4445  Personality Assessment Lab  4 Credit Hours
This is a course in methods of assessing personality. The theory and methods of observation, interviewing, questionnaires, IQ tests, and projective tests are discussed and employed in brief individually-designed studies. In addition to the course prerequisite, students should have at least three upper-level psychology credits and junior or senior standing or permission of the instructor. Students cannot receive credit for both PSYC 4445 and PSYC 544. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Junior or Senior

PSYC 446  Human Sexual Behavior  3 Credit Hours
A comprehensive review of facts about human sexuality. The emphasis is on psychological aspects of sex, but there is also a consideration of genetic, physiological, and anatomical aspects of sex, and contemporary issues. Students cannot receive credit for both PSYC 446 and PSYC 546. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 450  Personality Theory  3 Credit Hours
A comparative review and examination of leading theories of personality; their basic concepts, similarities and differences, applications in clinical psychology, in education, in social planning, and in research. Students cannot receive credit for both PSYC 450 and PSYC 550. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 451  Prin of Counseling and Psych  3 Credit Hours
An introduction to traditional and innovative methods of psychological counseling and psychotherapy with an emphasis upon the theoretical foundations of personality and behavior change. Differences and similarities among the various schools of counseling and psychotherapy will be examined among with the values and limitations common to them all. (YR).
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101

PSYC 455  Health Psychology  3 Credit Hours
A discussion of the research on health promotion, psychological factors in the development of illness, cognitive representations of health and illness, stress and coping, social support, nutrition and exercise. Focus will be on the factors related to the development and maintenance of optimal health. Students cannot receive credit for both PSYC 455 and PSYC 555. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 456  Sport Psychology  3 Credit Hours
A consideration of research and theory aimed at two objectives: (a) understanding how psychological variables affect physical performance and (b) understanding how participation in sports influences psychological development. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
PSYC 457  Positive Psychology  3 Credit Hours
This course examines the contemporary movement of positive psychology, which uses the tools of rigorous science to explore the sources and nature of human strengths and psychological well-being. It then seeks to apply this knowledge to help individuals and institutions function more effectively. Topics include the biological basis of positive emotions, resilience and post-traumatic growth, positive relationships, positive education, positive workplaces, and positive development across the lifespan. (YR)
Prerequisite(s): PSYC 101

PSYC 461  Learning and Memory  3 Credit Hours
A consideration of major theories and research results related to learning and memory in humans and animals. Students cannot receive credit for both PSYC 461 and PSYC 561. (YR),
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

PSYC 463  Sensation and Perception  3 Credit Hours
Analysis of basic sensory and perceptual phenomena with a review of relevant behavioral and physiological literature. Students cannot receive credit for both PSYC 463 and PSYC 563. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

PSYC 464  Applied Cognitive Psychology  3 Credit Hours
The focus will be on the application of principles of cognitive psychology (defined broadly to include sensation and perception) to benefit the student in real-life settings. Specific areas might include human factors, retention, recall, attention, reasoning, problem-solving, decision making, reading, comprehension, learning, and language.
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 465  Experimental Psychology  3 Credit Hours
Laboratory course in Experimental Psychology, including sensation, perception, learning, memory, language, and problem solving. Students will perform standard experiments, design one or two new modified experiments, collect data, analyze results, and present them in the form of laboratory reports. (YR).
Prerequisite(s): (PSYC 170 or PSYC 171 or PSYC 101) and PSYC 381

PSYC 470  Advanced Physiological Psych  3 Credit Hours
Further study of the subject matter of PSYC 370. Advanced study of topics in the area of psychobiology. Students cannot receive credit for both PSYC 470 and PSYC 570. (YR).
Prerequisite(s): PSYC 370
Restriction(s):
Can enroll if Level is Undergraduate

PSYC 471  Reproductive Phys and Beh  3 Credit Hours
An in-depth examination of reproduction from a physiological and psychological viewpoint. Physiological topics include anatomy, hormones, and neural mechanisms. Psychological topics include behavior development and descriptions. Students cannot receive credit for both PSYC 471 and PSYC 571. (YR)
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Level is Undergraduate

PSYC 4725  Motivation and Behavior  3 Credit Hours
Study of the psychobiological aspects of motivated behavior. Topics include hunger, addiction, aggression, sleep, and achievement. Students cannot receive credit for both PSYC 4725 and PSYC 572. Prerequisites or permission of instructor. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 473  Clinical Neuropsychology  3 Credit Hours
This course is an in-depth examination of the field of clinical neuropsychology including a review of brain anatomy and physiology, theories of neural organization, and disorders of the nervous system. In addition, students will learn techniques utilized in neuropsychological assessment. (Prerequisite may be waived for students with Natural Science background.) (YR).
Prerequisite(s): PSYC 370

PSYC 474  Animal Intelligence  3 Credit Hours
Animal Intelligence involves the study of human and non-human animal behavior and cognition in an evolutionary and comparative framework. As an introduction to human and non-human animal cognition and though processes this course will examine topics such as problem-solving, spatial cognition, categorization, memory, number concepts, tool-use and tool-production, insight, imitation, social cognition, self-recognition and language(-like) behavior. In addition to discussing basic experimental findings about cognition in animals, an emphasis is placed on the logic and evidence used to justify theoretical conclusions. The course requires reading and critiquing original journal articles in addition to textbook chapters for foundational concepts.
Prerequisite(s): PSYC 372 or PSYC 363 or PSYC 461 or BIOL 419 or BIOL 456 or ANTH 336
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

PSYC 480  History of Psychology  3 Credit Hours
An overview of the development of modern psychology from the 17th century to the present, with particular emphasis on the beginning of psychology in America. The philosophical assumptions of various schools of psychology will be examined. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101

PSYC 481  Computers in Psychological Res  3 Credit Hours
An introduction to the use of computers in data analysis and psychological research. Students will receive training in computer programming using SPSSPC and other software packages. Topics will include: correlation, regression, analysis of variance, and several multivariate techniques. (YR).
Prerequisite(s): PSYC 381

PSYC 485  Psychology Internship  3 or 6 Credit Hours
The psychology internship offers experience in a wide variety of placements dealing with human services. These include programs related to child abuse, crisis intervention, geriatrics, human resources/staff development, cognitive impairment, criminal probation, teenage runaways, substance abuse, and women's issues. The program is designed for juniors and seniors with a concentration in psychology or behavioral sciences and involves training in listening and helping skills.
Prerequisite(s): PSYC 171 or PSYC 170 or PSYC 101
Restriction(s):
Can enroll if Class is Junior or Senior
PSYC 488  Primatology Field Course  3 Credit Hours
This Primatology Field course will take students through an exploration of the scientific approach and methodology to the study of animal behavior. Students will gain experience in creating research projects and collecting data on free-ranging animals in a naturalistic environment. Preparation in lectures and activities on the campus of The University of Michigan-Dearborn will include learning about observational methods in detail, practicing developing ethograms and operational definitions, pilot data collection to modify the ethograms at the Detroit or Toledo Zoo, and use of GPS for data collection. Lecture materials will also cover topics of primate behavior and ecology. Students will spend a week observing a primate species (for example, one possible site for this field course may be to observe free-ranging lemurs at a reserve in Florida). Students' data collection at the field site will be for five continuous days. This field course provides a unique opportunity to study rare and endangered primates species in a safe and accessible environment. Short day trips to other facilities are possible, such as a visit to an ape sanctuary. Topics covered in this field course include advanced observational methods stemming from the field of Ethology, practical development of ethograms (checksheets) and research design, best practices in GPS data collection methods, and collating and summarizing data on animal behavior into a research paper. Lecture topics will address ethological methods and research design and also how to conduct research with free-ranging nonhuman primates. In addition there will be a strong focus on health and safety precautions in the field for human and nonhuman primates, acclimation to the field site, and practicalities of data collection. For graduate credit on this course, extra journal articles and longer written papers required than for the undergraduate requirements. 999999
Restriction(s):
Cannot enroll if Class is Freshman
PSYC 490  Advanced Topics in Psychology  3 Credit Hours
Examination of problems and issues in selected areas of psychology. Title in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).
PSYC 492  Individual Research  1 to 3 Credit Hours
No more than 6 hours may be counted for concentration. Arrangements will be made for adequately prepared students to undertake individual research under the direction of a staff member. The students, in electing, should indicate the staff member with whom the work has been arranged. Students cannot receive credit for both PSYC 492 and PSYC 592. (YR).
Restriction(s):
Can enroll if Level is Undergraduate
PSYC 493  Capstone in Psychology  3 Credit Hours
Students completing this capstone course will apply and further develop their skills with research methods, data analysis, critical thinking and writing by completing a research project within the field of psychology. Students will work closely with the faculty member to develop the topic and specific format of the research project. Upon completion of the project, students will reflect upon the skills developed in the program and how they may be useful in the workplace, in graduate or professional school, and in their personal lives. (F, W)
Prerequisite(s): PSYC 381 and PSYC 415 or PSYC 425 or PSYC 435 or PSYC 4445 or PSYC 465
Restriction(s):
Can enroll if Class is Junior or Senior
PSYC 497  Seminar in Psychology  3 Credit Hours
Small seminar examination of problems and issues in selected areas of psychology. Title in Schedule of Classes will change according to content. Course may be repeated for credit when specified topics differ. Written permission of instructor required.

PSYC 497A  Seminar in Psychology  3 Credit Hours
Topic: Seminar in Cognitive Science. Cognitive Science is an interdisciplinary science of mind and intelligence encompassing fields such as cognitive psychology, philosophy, linguistics, neuroscience, and artificial intelligence. The present seminar will investigate cognitive science in terms of the human information processing paradigm of the 1950s and contemporary connectionist challenges to this view.

PSYC 498  Psychology Honors Seminar  3 Credit Hours
Preparation for Honors research project. Involves discussion of and writing on: choosing a topic, reviewing the literature, selecting a research method and design, and developing a research proposal. (YR).

PSYC 499  Psychology Honors Research  3 Credit Hours
Participation with two faculty members in work leading to the honors thesis. This work involves active participation in research and will culminate in an independent research report, the honors thesis. Open only to psychology honors candidates. (F,W).
Prerequisite(s): PSYC 498

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Religious Studies (RELS)

RELS 120  Philosophy and Religion  3 Credit Hours
An examination of how basic concerns of philosophy impinge on questions of religious beliefs. Using philosophical texts, the course will explore such questions as the following: Does God exist? Does human life have a purpose? How can we know whether religious claims are true?

RELS 201  Religions of the World  3 Credit Hours
A study of religion in essence, in manifestation, and in relationship with the other dimensions of culture. Surveys major world religions.

RELS 313  African American Religions  3 Credit Hours
Full Title: African American Religious Experience This lecture course presents a survey of African American expressions across diverse religious traditions including Christianity, Islam, Judaism, Buddhism, and will explore contested forms of spiritual expression such as secularism and new religious movements. The course tracks these experiences from the late 18th to the 21st century in light of the contemporary context of social, political, and economic forces in the United States. No prerequisites. (YR)

RELS 327  Myth & Ritual in Classical Art  3 Credit Hours
Polytheistic, multicultural religious practices shaped Greek and Roman culture and society. This course examines the main deities, myths, rituals and sanctuaries of the ancient Mediterranean through the study of art, architecture, texts and archaeology. Freestanding sculptures, relief sculptures, vase paintings, wall paintings, mosaics, coinage, altars and temples will be analyzed.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 105
RELS 331  Early Christian Byzantine Art  3 Credit Hours
Borrowing its formal language from late antiquity and its symbolism from other mystery cults, the art of early Christianity emerged from the Roman catacombs to monumental expression under emperors Constantine and Justinian. Special attention will be devoted to the invention of a new symbolic language in art and to the development of church architecture. 
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

RELS 332  The Reformation Era: 1500-1648  3 Credit Hours
A study of the nature, course, and impact of the Protestant Reformation in Europe, Humanism, the Counter-Reformation, and the cultural and social implications of Protestantism also receive attention. (YR).

RELS 333  Intro to Gospel Music  3 Credit Hours
This course explores the history and aesthetics of Black sacred music within cultural context. Major figures (Thomas A. Dorsey, Mahalia Jackson, The Winans Family, Kirk Franklin), periods (slavery, Great Migration, Civil Rights movement), and styles (folk and arranged Negro spirituals, congregational songs, and gospel songs - traditional to contemporary) will be studied through recording, videos, film, and at least one field experience. Underlying the course is the theory (Mellonee Burnim and Pearl Williams-Jones) that gospel music is an expression of African American culture that fuses both African and European elements into a unique whole. (OC).

RELS 335  Women in Medieval Art  3 Credit Hours
Women have often been regarded as the second sex of the middle ages due to the misogynistic attitudes of that era. Recent scholarship, however, has unearthed a significantly more complex picture. Through a study of visual representations of women in medieval art, this course will examine women's roles in the creation and patronage of art and literature, economic and family issues, and women's participation in new and innovative forms of religious piety.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106 or WGST 275 or WGST 303 or HUM 275 or HUM 303 or ANTH 275 or ANTH 303 or PSYC 275 or PSYC 303 or SOC 275 or SOC 303 or WST 275

RELS 337  Islamic Movements in the Middle East  3 Credit Hours
Will compare several Islamic movements in Middle Eastern history, starting with the rise of Islam in Mecca and Medina. Later impulses toward Islamic revival all looked back to the first movement, and hoped to capture both its spirit and its success. With this as background, the course will move to address two questions; How did later Islamic movements understand the history of the rise of Islam? How have later Islamic movements had to adapt their methods and their ideology to different historical circumstances? (AY).

RELS 338  Women & Islam in the Middle East to 1900  3 Credit Hours
This course covers the historical development of Islam's normative stance towards women and gender roles in the Middle East from the rise of Islam to the earliest stirrings of feminist activism.

RELS 341  Religion and Literature  3 Credit Hours
An investigation of the ways in which religious ideas and practices have informed works of literature, and vice versa. Surveying a variety of genres and themes, the course will focus mainly on British and/or American literature and its engagement with Judaeo-Christian religion, though some attention may be devoted to other literary and religious traditions (e.g., ancient and medieval texts, European and world literature, Islam and Eastern religions). 
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)

RELS 342  Myth and Motif  3 Credit Hours
A study of archetypal figures and thematic motifs. Their recurrent appearance in different literary periods and genres and their lineage will be examined in order to increase understanding of the works themselves and of the ages which produced them. A selection will be made from classical myth, Biblical narrative, and historical sources. Thus the figures may vary from Oedipus and Cain to Faust and Don Juan. Motifs or story patterns may include such devices as the spiritual quest, the journey into Hell, or the patricide prophecy.
Prerequisite(s): ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240

RELS 346  Bible and Western Tradition  3 Credit Hours
A detailed study of major episodes from the Bible, first as a literary work, and second as it is reflected in both poetry and the visual arts during the Renaissance and Baroque periods. Included are selected works by such masters as John Donne, George Herbert, and John Milton in poetry and Michelangelo, Raphael, and Leonardo da Vinci in painting and sculpture.

RELS 349  Bible in/As Literature  3 Credit Hours
This course will study selected readings from the Bible, first in regard to their own literary, historical, and cultural contents, and then in regard to their reception, interpretation, and reapplication by later literary tradition. Biblical selections will cover both the Old and New Testaments as well as Apocryphal traditions, while reading from later non-biblical texts will be drawn from various literary periods.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)

RELS 355  Religion and Politics  3 Credit Hours
The primary focus of the course is on political movements or systems, which take a religious form or have a religious base or use a religiously rooted ideology. Possible themes or cases covered include millennialism, the Iranian Islamic revolution, the Catholic Church as a political system, liberation theology in Latin America, Zionism and the Evangelical movement in America. (AY).

RELS 360  Myth, Magic, and Mind  3 Credit Hours
A broadly based introduction to the range of human mythical and magical traditions. Sophomore standing: ANTH 101 highly recommended. (YR).

RELS 363  Rel in Amer Hist: 1607-1865  3 Credit Hours
A survey of the religious movements and trends in America from the 17th century to the Civil War, with emphasis on Puritanism, 18th-century revivalism, and 19th-century denominationalism and social reform. (AY).
RELS 3634 History of Islam in the US 3 Credit Hours
This course traces the long history of Islam and of Muslims in the United States (1730s-present), paying careful attention to the interaction among Muslims across the dividing lines of race, gender, immigrant generations, sect, political orientation, and class, and between Muslims and other Americans.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

RELS 364 Rel in Am Hist II:1865-Present 3 Credit Hours
A survey of American religion from the Civil War to the present, with emphasis on ethnicity and religion and post-World War II revivals of religion. (AY).

RELS 365 Introduction to the Qur’an 3 Credit Hours
This course is an introduction to the Qur’an. This class will cover the historical and cultural factors in which the Qur’an appeared. The class will also examine some of the major themes covered in the Qur’an such as gender, science, pluralism, worldview and scope forth. Also, will cover major schools of interpretations and methodologies ranging from the literary to the scientific. The class will be conducted in English and knowledge of Arabic is desired but not required. No prerequisites. The class will consist of lectures, discussions, and movies.

RELS 366 Religion and Resistance 3 Credit Hours
This course examines how religion and spirituality as cultural form has been instrumental in influencing social, political, and economic thought and the action of violent and nonviolent resistance. In such, African Americans have affirmed their humanity, their citizenship, and have exerted mechanisms of protest and change that have in-kind influenced similar thought and activity around the globe. When contemporary students are aware of this history at all, it is often without the knowledge or understanding of the various forms of resistance and the range of reason and spirituality behind this activity. The course will present key figures from within this range (AY).

RELS 373 Bible in History 3 Credit Hours
In this course we will try to examine the historical circumstances and contexts surrounding the writing of The Hebrew Bible. Roughly speaking, we will begin by exploring three aspects of the subject: Historical context of the writing of the Bible-i.e. during the organizing and communicating of each segment. History of the canonization: the ideas and rationale behind including some books but not others. History in the Bible. In more specific terms, this will entail examining who wrote the Bible, when and why. The narrative incorporates the movement from an oral tradition to a written one and will demand some focus on certain pivotal moments, e.g., Ezra’s reading (cf. Ezra-Nehemiah), or the historical events in Kings and Chronicles, or the defeat of the northern kingdom of Israel in 722 B.C.E. (BC) and of the southern kingdom of Judah in 589 B.C.E.

RELS 384 Islamic Decorative Arts 3 Credit Hours
This course in an in-depth investigation of the decorative arts of the Islamic Middle East from the seventh through the eighteenth century including the lands of Islamic Spain and North Africa and extending east to Afghanistan. The course traces the development of decorative styles in objects of daily and courtly life, particularly ceramics, metal work, glass, wood and ivory carving, textiles and rugs. The central role played by calligraphy in all of the arts in emphasized as well as in manuscript production and the Arts of the Book. As a religion, but also a way of life, Islam fostered a distinctive artistic production reflected in these decorative arts.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106 or HUM 201 or RELS 201

RELS 385 Philosophy of Religion 3 Credit Hours
A philosophical examination of basic religious problems, such as the nature and grounds of religious belief, the existence and nature of God, human immortality, the relations of religion and science, and the nature or religious language. Students electing this course must have successfully completed a previous course in philosophy or have permission of the instructor.
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 365 or PHIL 340 or PHIL 355 or PHIL 350 or PHIL 369 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 442 or PHIL 445 or PHIL 485 or PHIL 490 or RELS 120

RELS 390 Topics in Religious Studies 3 Credit Hours
Examination of problems and issues in selected areas of religious studies. Title in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. Junior standing required.
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

RELS 393 Black Women, Rel & Spirituality 3 Credit Hours
This lecture course surveys descriptive and critical literature relevant to the religious and spiritual experience and thought of African diasporic women. Studying religiosity and spirituality among this population helps students understand this influential, culturally-constructed world view of Black women as they engage in a variety of institutions including healthcare, economic activity, the criminal justice system, politics, and social relationships. The course gives particular attention to Black feminist and Womanist literature on these topics. (AY)
Restriction(s):
Cannot enroll if Class is Freshman

RELS 401 Religion in Contemp US Culture 3 Credit Hours
The purpose of this course is to provide people in contemporary multi-religious America foundational information about beliefs and practices of several of the world’s religions sufficient to engage in inter-religious dialogue. Special emphasis will be given to changes the American religious landscape after 1965 with the passage of new immigration laws. The course will combine lectures and visits to a variety of Metropolitan Detroit religious centers including Hindu, Buddhist, Jain, Sikh, Jewish, Christian, Muslim, and Native American. (S).

RELS 404 Medieval Mystical Writers 3 Credit Hours
A study of the genre of mystical writing as it was developed and practiced throughout the Middle Ages and in 14th century England particularly. Attention will be given to the historical, religious, and cultural contexts that enabled and were created by mystical texts. In addition, the course will explore how traditional and contemporary trends in the fields of religious and literary studies can be brought to bear on the genre of mystical writing. (OC)
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40) or COMP 280 or ENGL 230 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

RELS 440 Religion and Culture 3 Credit Hours
An introduction to the comparative study of religious systems. Explores religious beliefs and practices in non-Western cultures; surveys theoretical approaches to the study of religion; and discusses how religions grow, develop, and change. ANTH 101 recommended. (YR).
REL 455  Sociology of Religion  3 Credit Hours
Religion as a social institution; its purposes, methods, structure, and beliefs, and its relation to other institutions.
Prerequisite(s): SOC 200 or SOC 201

REL 498  Independent Study  3 Credit Hours
This course provides an opportunity for qualified students interested in Religious Studies to pursue independent research under the direction of a qualified faculty member. The project must be defined in advance, in writing, and must be a topic not currently offered in the regular curriculum.
Prerequisite(s): HUM 201 or PHIL 120
Restriction(s):
Can enroll if Class is Junior or Senior

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Science and Technology Studies (STS)

STS 300  Intro to Sci & Technol Studies  3 Credit Hours
An examination of the social contexts and consequences of science and technology, with special attention to the impacts of the automobile and automobile industry on American society. Topics include the automobile's role in the history of manufacturing; the impact of various production techniques on work and workers; the effects of the automobile on the natural environment, the design of cities and development of suburbs, and ways of life; the iconic status of the car in American culture and the relationship between automobile design and aesthetics. (YR).

STS 301  Concepts of Environmentalism  3 Credit Hours
Designed to identify the underlying concepts of any environmental issue. The course will demonstrate the interdisciplinary nature of environmental problem-solving through current readings, classical monographs, and films. Students will conduct a systems analysis of a household and a local community. A major research paper on an environmental topic will be required. The course will not be open to students who take ENST 105. (YR).

STS 305  Social Issues in Auto Design  3 Credit Hours
An examination of the impact of four contemporary social issues - vehicle safety, energy consumption, environmental impact, and a changing workforce - on the design and engineering of automobiles in the context of globalization and rapid technological change. Using a series of case studies, the course will focus on the ways social concerns, government regulation, and professional ethics, as well as industry standards and technical considerations, affect the decision-making processes of automobile designers and engineers. (OC).
Prerequisite(s): COMP 105 or COMP 110 or CPAS with a score of 30

STS 308  Urban Geography  3 Credit Hours
The geography of human settlement and urbanization. Particular emphasis is placed on transformation of the physical environment, and resource use throughout history from ancient civilizations to modern megalopolises. Universal urban challenges, such as sprawl, pollution, congestion, crime, poverty, etc., are addressed. (F, W).

STS 309  Economic Geography  3 Credit Hours
Spatial aspects of the ways people make their living. Discussion of the spatial distribution of resources and wealth at various scales. Introduction of site selection and location analysis. (F).

STS 310  Computers and Society  3 Credit Hours
A sociological discussion of computers and other information technology starting with the larger concept of technology and social change, an exploration of various forms of information technology, their history and development, their relationship to the changing social structure of a post-industrial society like 20th/21st-century USA. Case studies could include "Computers and the Workplace," "Computers in Medicine," "Computers and Education," and "Computers in Popular Culture." Course concludes with a discussion of new social problems and possible futures. (OC).
Prerequisite(s): SOC 200 or SOC 201

STS 312  Environmental Ethics  3 Credit Hours
The relationship of human beings to the non-human environment raises pressing moral and political issues. This course will use the theories and concepts of philosophical ethics to explore such questions as human obligations to non-human animals; the preservation of wilderness; balancing economic, aesthetic, and spiritual values; and the problems of pollution, urban sprawl, and ecological justice. (OC).
Prerequisite(s): PHIL 110 or PHIL 233 or CRJ 240 or ENST 105 or ENST 301

STS 321  Labor in the American Economy  3 Credit Hours
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of wages, unemployment, economic insecurity, the trade union movement, collective bargaining, and labor legislation. (F).
Prerequisite(s): ECON 201 and ECON 202

STS 325  Environmental Politics  3 Credit Hours
An examination of policy making about problems affecting the environment, at a global, national, and local scale.

STS 326  Gender, Science & Engineering  3 Credit Hours
Explores some of the history of women in science and engineering, the current status of women in science and engineering, and feminist theory in research. Topics include cultural influences on women in science and engineering, careers and life balance, and a feminist approach to scientific and engineering teaching and research.

STS 340  Race and Evolution  3 Credit Hours
An evolutionary survey of the biological differences among human populations in response to such factors as climate, culture, disease, nutrition, and urbanization. The meaning of racial variation is discussed in terms of adaptation to environmental stress. "Race" is rejected; racism is discussed. (AY).

STS 345  Cultural Ecology & Evolution  3 Credit Hours
An introduction to the study of human ecology. This course employs the case-study method to develop an evolutionary and biocultural perspective on the relationship between human beings and their environments. (OC).
STS 360 Philosophy of Technology  3 Credit Hours
A study of both the history of, and current issues in, the philosophy of technology. This course will examine the deeper meanings and implications of our modern technological society. Questions examined include: What is the definition and nature of technology? How did the concept originate in Western thought? What is the relationship between modern industrial technology and the 'mechanistic' worldview? How do Western religious beliefs influence our attitudes about technology? Is technological progress socially determined, or is it culturally independent? In what ways has our technological society been supportive of, or detrimental to, overall human well-being? Students will cover both classic and contemporary readings.

STS 365 Environmental Psychology  3 Credit Hours
A survey of the contributions of the behavioral sciences to the understanding and solution of environmental problems that threaten our survival. Insights derived from psychology, anthropology, and computer science are discussed. Major topics include overpopulation, overconsumption of resources and energy, future shock, cognitive limitations in our understanding of ecological-political systems, and the use of behavioral control. (OC).
Prerequisite(s): PSYC 170 or PSYC 171

STS 3666 Henry Ford and His Place  3 Credit Hours
Using the biography of Henry Ford as a touchstone, the course will examine the trajectories of historical change and regional development between 1870 and 1950. Of fundamental concern will be southeastern Michigan's transformation from a 19th century outpost on the Great Lakes to the nation's "engine of change" in the 20th century. Henry Ford was the major player in that revolutionary transformation. This course examines his role in history and mythology as well as the causes and implications of that transformation. (OC).

STS 3695 The American City  3 Credit Hours
This course examines the development of urban America from the European-style port cities of the colonial period through the edge cities of today. The bulk of the course will focus on the late 19th and 20th century urban environment with an eye towards understanding the diverse residents, cultures, economies, and geographies that have shaped the American cities. We will cover everything from developments in transportation, architecture, business, and technology to immigration, politics, and urban culture. Broad concerns and constituencies have shaped the urban public sphere, the physical development of cities and the experiences of living as an urbanite and, consequently, they will receive much of our attention. American patterns of development will then be placed in context with those of other nations and cultures.

STS 374 History of Industrial Technology  3 Credit Hours
Focusing on western Europe and the United States since the Industrial Revolution, this course will examine the history of manufacturing technologies and will include the following topics: mechanization and the rise of the factory; mass production; the process of innovation; design and diffusion of new technologies; technologies; technology and the changing nature of work; discussions, and examination of artifacts (actual tools and machines), students will consider the central role played by technology in the making of modern society. (YR).

STS 383 Labor in America  3 Credit Hours
A survey of urban workers from colonial times to the present. Among the topics covered are changing standards of living, the experiences of industrial work, labor organizations, and working-class politics. (OC).

STS 386 Comparative History of Technology  3 Credit Hours
This course will examine the history of technology from a comparative perspective; studying the development and impact of technology in different societies during various historical eras. Topics include: irrigation control and the rise of ancient empires; technology's role in the industrial revolution; technological innovation and the pace of social change. Current issues and various analytical perspectives in the history of technology will also be examined. (OC).

STS 390 Topics in STS  3 Credit Hours
Examination of problems and issues in selected areas of Science and Technology Studies. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).

STS 4021 Economics of the Labor Sector  3 Credit Hours
Theoretical analysis and empirical studies of the nature and operation of labor markets. Includes theories of wage determination and income distribution, the nature of unemployment, the impact of collective bargaining on the economy, the extent and economic effects of discrimination, and the nature and effects of government wage and employment policies. ECON 321/STS 321, Labor in the American Economy, is valuable background to this course although it is not a prerequisite. This course counts as a required capstone (4000-level) course in Economics and also counts toward the Economics Honors designation.
Prerequisite(s): ECON 302

STS 403 Issues in Cyberspace  3 Credit Hours
This course will explore some of the social, political, legal, and technological issues associated with the use of new media technology to move ideas and information in a democratic society. Examples of areas to be explored include the Internet and World Wide Web, privacy, the future of the mass audience, and the meaning of the First Amendment in the 21st Century. (AY).

STS 409 Human Body, Growth & Health  3 Credit Hours
This course provides and advanced undergraduate introduction to the topic of human growth and shows how human growth can be a reliable measure of the psychological, social, economic and moral conditions of a society. A major theme will be the interplay of biology and culture in shaping the patterns of human growth and, consequently, the health of populations and individuals. (OC).
STS 410  Darwinism and Philosophy  3 Credit Hours
Darwinism represents a challenge to the traditional view of human life as radically separate from the rest of the natural world. This course will examine the philosophical implications of this world view. It will address questions such as these: Is Darwinism compatible with traditional religion? Does Darwinism imply that human life and the cosmos are without purpose? Can human life be meaningful if it is the result of evolution and natural selection? Does Darwinism require us to change our view of nature? What are the ethical implications of a Darwinian view of life and the universe? (OC).
Prerequisite(s): PHIL 100 or PHIL 210 or PHIL 200 or PHIL 233 or PHIL 240

STS 430  Medical Anthropology  3 Credit Hours
A comprehensive examination of how culture mediates processes of illnesses and healing. Comparative materials examined, which provide a context for an anthropological analysis of modern biomedicine. (YR).

STS 441  Sociology of the Auto Industry  3 Credit Hours
The American auto industry is examined in its relationship to the economic and political structures of 20th-century U.S. This includes a focus on the social history of the industry as well as a discussion of the nature of auto work. Proposals for changing social relations at work are also examined. The course concludes with an examination of the impact of the industry on a local community (Detroit). (F,W).
Prerequisite(s): SOC 200 or SOC 201

STS 442  Sociology of Work  3 Credit Hours
The study of work roles in modern society. The impact of industrialization, professionalization, and unionization on the conditions of work, worker motivation, and job satisfaction. Career choice processes and career patterns, occupational status and prestige, and occupations associated with the topics to be considered. (YR).
Prerequisite(s): SOC 200 or SOC 201

STS 464  Applied Cognitive Psychology  3 Credit Hours
The focus will be on the application of the principles of cognitive psychology (defined broadly to include sensation and perception) to benefit the student in real-life settings. Specific areas might include human factors, retention, recall, attention, reasoning, problem-solving, decision making, reading, comprehension, learning, and language.
Prerequisite(s): PSYC 170 or PSYC 171

STS 485  Philosophy of Science  3 Credit Hours
A critical study of the foundations of the sciences, natural and social, with emphasis on the following topics: the nature of scientific method, theories and explanation, probability and determinism, the unity of the sciences. (OC).
Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 200 or PHIL 233 or PHIL 240

STS 488  Env Lit & Reps of Nature  3 Credit Hours
An interdisciplinary study of the ways in which the relationship between "nature" and humankind has been represented in literature and other forms of cultural expression. Emphasis on American and British texts of the 19th and 20th centuries, but assigned materials may include readings from other cultures and historical periods. (OC).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 280 or COMP 270) or CPAS with a score of 40 and (ENGL 230 or ENGL 231)

*  An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Social Sciences (SSCI)

SSCI 236  Sid-Comm Org for Environ Just  3 Credit Hours
Full Title: Sem in Detroit: Community Organizing for Environmental Justice. This course serves as an elective course for the Semester in Detroit (SiD) program. This course looks at movements, resistance, resilience, and liberation as it pertains to environmental justice. A growing body of evidence reveals that people of color and low-income persons have borne greater environmental and health risks than the society at large in their neighborhood, workplace, and playgrounds. We will connect history, current events, and real-life experiences to local organizing and movement struggles that build power for our communities. We will utilize highly interactive popular education methods where participants share political analysis, learn facilitation and organizing skills, and think together about long-term, transformative strategies to build environmental, racial and economic justice.

SSCI 302  SiD-Intern Seminar  2 Credit Hours
Full Title: Semester in Detroit: Internship Reflection Seminar This course serves as a core course for the Semester in Detroit (SiD) program. The primary purpose of this class is to provide a supportive, yet challenging learning space for reflecting on your Detroit internship experiences this semester. There are three main sources of material for this class: you, the internship, and Detroit. While, in theory, each is distinct, in practice, all three are interwined and interact and affect one another. Your challenge will be learning to see more clearly the interactions among these domains. Students must apply to, and be accepted by UM-Ann Arbor’s Semester in Detroit program to enroll in this course.
Corequisite(s): URS 301

SSCI 390  Topics in Social Sciences  1 to 3 Credit Hours
Examination of problems and issues in selected areas of social science. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when the specific topic differs. (OC)
Restriction(s):
Can enroll if Level is Undergraduate

*  An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Social Work (SWK)

SWK 200  Intro to Social Work  3 Credit Hours
Introduction to Social Work is intended to provide a basic introductory course to assist professionals in related and relevant fields in the theories, approaches, and practices of social work. Students will be exposed to the art and science of the social work discipline through academic research and case studies, experiential learning, group discussion, and supporting activities.
SWK 300  Theories and Practices  3 Credit Hours
This course is designed to develop the knowledge and skills necessary for students to begin understanding the practice of social work. The course provides an overview of general practice and theory. Students are introduced to the value, philosophy and knowledge base considerations of social work practice. Generalist social work practice is presented as a process of planned change with various clients and systems as well as the application of ethical and technical principles of practice. Specific emphasis will be given in this course to the integration of material from the student's knowledge of human behavior, social research, life experience, and professional skills. Lessons and exercises are offered to emphasize understanding and relating to persons of diverse backgrounds including oppressed groups, populations-at risk and racial or ethnic minorities.
Prerequisite(s): SWK 200

SWK 301  Intro to Macro Social Work  3 Credit Hours
This course examines generalist community and administrative practice roles, the perspectives of strengths, empowerment, and evidence-based practice along with the values of social justice, diversity, and participation. Specific attention is given to designing intervention programs that address community needs.
Prerequisite(s): SWK 200

SWK 302  Family Preservation  3 Credit Hours
Current methods for family preservation and helping families cope with family problems are the focus of this seminar style course. Through lectures, written assignments and classroom activities, students learn and practice family intervention technique. Emphasis on families with diverse structures is undertaken and diverse practice settings including home, school, child welfare, mental health, family court, corrections and other community environments are explored in detail. Students are instructed in the special issues in work w/families, e.g. minority status, gender and sexual orientation, disabilities, family violence, trauma and addiction.
Prerequisite(s): SWK 200

SWK 305  Case Management for Change  3 Credit Hours
Students learn step-by-step processes of case management from intake and initial referral for services, determination of eligibility for services, writing a formal plan for services, case documentation techniques, and techniques for monitoring a client's progress through the service delivery system, to case closure/follow-up activities. The course instructs on access to community resources, interpreting and utilizing information from other professionals, and development of interviewing, intervention, case recording, and caseload management skills. Legal and ethical issues in service delivery are integrated throughout the course.
Prerequisite(s): SWK 200

SWK 306  Working w Involuntary Clients  3 Credit Hours
Social workers often have to engage clients who would be reluctant to engage with service providers. Often this group includes those who are mandated to engage with service due to legal requirements (for example, substance users and those convicted of domestic violence) however the initiation of service may experience reluctance as well (for example bridge cards and temporary shelter). This course examines the strategies and theories for interventions with reluctant clients and the various populations afflicted. The legalities and ethics of coercive service provision are outlined. Systems reform and enhancement for these clients, programs and services is reviewed in current literatures.
Prerequisite(s): SWK 200

SWK 310  Social Services in Detroit  3 Credit Hours
This course focuses on social service provision and the social work profession within the city of Detroit. The course addresses working with multiple populations and multiple service providers. A significant component of the course consists of guest speakers who have experience working in the city. The class will often meet off-campus at various social service agencies; students will be responsible for their own transportation.
Prerequisite(s): SWK 200

SWK 401  Social Work Seminar  3 Credit Hours
This capstone course integrates the Social Work minor with the major studies of the enrolled students by preparing the student for continued professional development, socialization into the profession, and integration of generalist social work practice into the students chosen profession. This course reinforces the students intention to work with social work professionals and their commitment to working with at-risk populations.
Prerequisite(s): SWK 200

Other Content
* An asterisk denotes a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Sociology (SOC)

SOC 200  Understanding Society  3 Credit Hours
An introduction to the study of human groups with special attention devoted to an analysis of contemporary American society. (F,W).

SOC 201  Contemporary Social Problems  3 Credit Hours
The study of major social problems with particular reference to American society. Problems such as crime, mental disorders, addiction, drug abuse, suicide, racial conflict, urban decay, pollution, population, and family disorganization are studied both from a descriptive and theoretical point of view and analyzed collectively as a manifestation of a complex, industrial society. (YR).
SOC 215 Research Skills BSci 1 Credit Hour
Full Title: Research Skills for the Behavioral Sciences. This course teaches foundational research and critical-thinking skills necessary for the success of students in the Behavioral Sciences (including Anthropology, Psychology, and Sociology) in conducting university-level research projects, papers, and other research assignments. Students will learn important research skills like distinguishing between scholarly and non-scholarly sources of information, using library search tools to find peer-reviewed and scholarly sources, evaluating and analyzing information sources and using them to build informed opinions and arguments, integrating and synthesizing sources, and using sources ethically. Students will learn these skills through lectures, practice and by applying them through a series of assignments. (F, W, S)
Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters

SOC 263 Western Culture III 3 Credit Hours
The third of four courses on Western Culture required of all honors students. Covers the period from 17th to 19th centuries. Focus in on the emergence of scientific thought, Enlightenment political theory, Romantic individualism, and the great 19th century intellectual revolutions of Darwinism, Marxism, and feminism. Materials will be drawn from literature, philosophy, political, and scientific writings of the period. (YR).
Prerequisite(s): HUM 262 or HIST 262 and (HUM 261 or HIST 261)

SOC 264 West Cult IV: The Modern Era 3 Credit Hours
Fourth of four courses in Western Culture required of all Honors students. Course covers period from 19th century to present. Focus will be on selected major issues of Western Civilization in the modern era: science and human values, bureaucratic and totalitarian societies, psychoanalytical thought, feminism, nihilism, existentialism. (YR).
Prerequisite(s): HIST 365

SOC 303 Intro to Women's & Gender Stud 3 Credit Hours
This course provides an interdisciplinary overview of the key theories and topics in Women's and Gender Studies. Special attention is given to how gender intersects with class, race, nationality, religion and sexuality to structure women's and men's lives. Students are also introduced to methods of gender analysis and will begin to apply these methods to topics such as women and health, gender roles in the family, violence against women, and gendered images in the mass media.
Restriction(s):
Cannot enroll if Class is Freshman

SOC 304 Studies in Det.Hist. & Culture 3 Credit Hours
This interdisciplinary course explores the political, social, and cultural history of Detroit by examining ways various groups and classes have interacted with and been shaped by structures of power and influence. The course highlights trade and commerce, newcomers, and the influence of organizations and institutions within the contexts of labor, race, ethnic, and religious histories and current affairs, and examines how these fit into the evolution of Detroit from the 19th century to the present. Where pertinent the influence of national and international movements included.

SOC 306 Comparat. American Identities 3 Credit Hours
This course will confront and complicate the following key questions: what does it mean to be an American? What is American culture? Participants in this course will respond to the questions central to the American Studies field by reading and discussing historical, sociological, literary, artistic, material culture, political, economic, and other sources. Students will use this interdisciplinary study to examine the multiple identities of Americans - as determined by factors such as gender, race, class, ethnicity, and religion. While emphasizing the diversity of American culture, participants will consider some core values and ideas uniting America both in historical and contemporary society. Students will be invited to seek out and share fresh narratives of the American experience.
Prerequisite(s): COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270 or COMP 280
Restriction(s):
Can enroll if Level is Undergraduate

SOC 308 Sociological Theory 3 Credit Hours
A historical survey of the major theorists and their works from the beginnings of sociological positivism to contemporary theories. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 309 Introduction to Law & Society 3 Credit Hours
Law and Society is a field of study that examines the interaction between the legal system and society from the perspective of the social sciences and humanities. This course focuses on core components of the legal system including courts, lawmakers, regulatory administration, alternative dispute resolution systems, and the legal profession. Throughout the course, students develop the ability to examine the legal system and its relationship to equality, social change, and public benefits using social science evidence. (YR)
Restriction(s):
Cannot enroll if Class is Freshman

SOC 310 Computers and Society 3 Credit Hours
A sociological discussion of computers and other information technology. Starting with the larger context of technology and social change, an exploration of various forms of information technology, their history and development, their relationship to the changing social structure of a post-industrial society like 20th/21st century USA. Case studies could include "Computers and the Workplace," "Computers in Medicine," "Computers and Education," and "Computers in Popular Culture." Course concludes with a discussion of new social problems and possible futures. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 350 Poverty and Inequality 3 Credit Hours
In a middle class-oriented culture, the poor experience many problems and are also considered deviant which tend to make poverty self-perpetuating. This stratum will be explored with respect to life styles, life changes, contributing factors, characteristics, individual and social consequences, and evaluation of attempted solutions. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 362 Social Life in Science Fiction 3 Credit Hours
This course focuses on the sociological analysis of social life depicted in contemporary and popular science fiction texts and films. The course examine the impact and consequences of different modes of social reproduction and family relations, social structure and organization, social inequality and stratification, social relations and conflicts, social mores, values and scenarios of dystopia. Through studying science fiction, students gain insight in our present's society's hopes, dreams, anxieties, and fears about future social relations, the environment and humanity. (W)
Prerequisite(s): SOC 200 or SOC 201
SOC 366  Sexualities, Genders, & Bodies  3 Credit Hours
This course introduces key questions and debates in lesbian, gay, bisexual, transgender, and queer studies. Through engagement with multidisciplinary sources, students explore how sexualities, genders, and bodies are constructed and contested, how these constructions vary in diverse contexts and historical moments, and what gaps remain in our knowledge of LGBTQ lives. (YR)

SOC 382  Social Psychology  3 Credit Hours
An introductory study of the interrelationships of the functioning of social systems and the behavior and attitudes of individuals. (YR).
Prerequisite(s): SOC 200 or PSYC 170 or PSYC 171 or SOC 201 or PSYC 101

SOC 388  LGBTQ Religious Experience  3 Credit Hours
This course explores intersections of religion, spirituality, and faith with sexuality and gender. Christianity and Islam receive particular attention. We also examine Lesbian, Gay, Bisexual, Transgender and Queer (LGBTQ) journeys within Buddhism, Hinduism, Judaism, new spiritual movements, and interfaith work. The course highlights intersections at three levels of analysis: the individual or personal level (how do LGBTQ identities intersect and interact with religious freedom and practice?), the interactional or community level (how do LGBTQ people experience belonging and rejection in diverse faith communities?) and the institutional level (how do the structures of these belief systems shape the life chances of LGBTQ people in society?). (W,S,AY)

SOC 390  Topics in Sociology  3 Credit Hours
Examination of problems and issues in selected areas of sociology. Title in Schedule of Classes will change according to course content. Course may be repeated for credit when specific topics differ. (F,W).

SOC 390A  Topics in Sociology  3 Credit Hours
TOPIC TITLE: Medical Profession: Past, Present, and Future. This course will examine the continuing evolution of the medical profession, from low status craft in the 19th Century, to high status profession in the middle of the 20th Century, to beleaguered interest group in the 1990's. What has occurred both within and outside the profession to bring about these changes? What is the condition of the medical profession today and what organizational changes does it face in the future? Among the special topics addressed will be how the profession regulates itself and ‘guarantees’ quality of medical care, and how pressures for cost containment impact medical practice. These are the central issues of the 1990's.
Prerequisite(s): SOC 200 or SOC 201 or PSYC 170 or PSYC 171

SOC 390B  Topics in Sociology  3 Credit Hours
This seminar will examine the meaning of gender and the ways in which gender ideologies have been (and are currently) used as organizing principles for social systems, for knowledge, and for perception itself.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

SOC 390C  Topics in Sociology  3 Credit Hours
TOPIC: Theoretical Perspectives on Gender and Difference. Will explore some major developments and inter-disciplinary perspectives within feminist theory. It will examine feminist innovations in social, political, and cultural theory and in feminine epistemology. It will also consider some of the fundamental questions these theories and methods raise about the origins of gender, the development and maintenance of patriarchy, and the inter-sections of gender, race, class, disability, age, and sexuality as categories of analysis and as bases of oppression or privilege.
Prerequisite(s): WST 275

SOC 390D  Topics in Sociology  3 Credit Hours
TOPIC: Narratives in Childbirth: A Feminist Perspective. This course will acquaint students with an historical outline of birth and midwifery in the western world. Focusing on the shift from the home to the hospital as the primary place for birth, this course will explore the changing role of birth attendants and the application of modern technology in the arena of childbirth. Differing philosophies of labor and birth will be considered, as well as birth and midwifery in cultural contexts. Birth, explored in historical and contemporary contexts, will also include "hands on" accounts of birth stories. Analytical opportunities for reflection upon the broader socio-cultural significance of attendance on women in childbirth in the postmodern era will be a pedagogical focus.
Prerequisite(s): WST 275 or SOC 200 or SOC 201 or ANTH 101 or ENGL 230

SOC 398  Directed Readings  1 to 3 Credit Hours
Reading assignments in sociology. No more than a total of six credit hours of SOC 398 and SOC 498 may be applied toward concentration. Permission of instructor required. (F,W,S).

SOC 402  Genocide  3 Credit Hours
This course explores questions related to genocide with particular reference to the social dynamics involved with regard to majority-minority relations. Topics of study include inequality, segregation, pluralism, the nature and causes of prejudice and discrimination and the impact that such patterns have upon American life. Students cannot receive credit for both SOC 403 and SOC 503. (F,W).
Prerequisite(s): SOC 200 or SOC 201

SOC 403  Minority Groups  3 Credit Hours
The status of racial and ethnic minorities in the United States with particular reference to the social dynamics involved with regard to majority-minority relations. Topics of study include inequality, segregation, pluralism, the nature and causes of prejudice and discrimination and the impact that such patterns have upon American life. Students cannot receive credit for both SOC 403 and SOC 503. (F,W).
Prerequisite(s): SOC 200 or SOC 201

SOC 4045  Dissed: Differ, Power, Discrim  3 Credit Hours
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power - social, economic, and political - in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a 'natural order', obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors, and ideologies that maintain discrimination and the unequal distribution of power and resources. Students will not receive credit for both SOC 404 and SOC 504.
Restriction(s):
Can enroll if Class is Freshman or Sophomore or Junior or Senior

SOC 4047  Dissed: Differ, Power, Discrim  3 Credit Hours
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power - social, economic, and political - in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a 'natural order', obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors, and ideologies that maintain discrimination and the unequal distribution of power and resources. Students will not receive credit for both SOC 404 and SOC 504.
Restriction(s):
Can enroll if Class Level is Undergraduate
SOC 4075  Sexual Praxis and Theory  3 Credit Hours
This course will offer an overview of sexual differences including: the socio-cultural construction of gender, sexual behavior, and orientation; sex and sexualities in language and literature; and diversity by race, class, and cultural heritage. These topics will enable students to understand human sexuality within and across a continuum removing notions of duality, or polarity, in sexual behaviors and orientations. Examples both from within Western society and from non-Western societies may be used to further this position. Theoretical perspectives may encompass sociological and anthropological work, literary theory and criticism, queer theory, and multi-disciplinary discussions/discourse. Texts may include: Sex and the Machine: Readings in Culture, Gender and Technology, The Anatomy of Love, The Lesbian and Gay Studies Reader, Second Skins: The Body Narratives of Transexuality, and Lesbian and Gay Marriage. 
Prerequisite(s): WST 275 or WGST 275 or SOC 275 or HUM 275 or PSYC 275 or SOC 443 or ANTH 275 or PSYC 405 or ANTH 406 or ANTH 101 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

SOC 409  Feminist Theories  3 Credit Hours
This course examines the different perspectives that feminist theorists have offered to analyze the unequal conditions of women's and men's lives. Students taking this course will develop an understanding of how theory functions as a way to know, understand and change the world. They will also be provided with a lens for comparing the assumptions and implications of alternative theoretical perspectives. A particular emphasis of this course is on theorizing the interrelationships among gender, race, class, sexuality and nationality. Course material includes applications of feminist theory to issues such as gender identity formation; sexuality; gender, law and citizenship; women and work; and the history and politics of social movements. Student will not receive credit of both SOC 409 and SOC 509. (AY)
Prerequisite(s): WGST 275 or WST 275 or SOC 200 or SOC 201 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

SOC 410  Quantitative Research  4 Credit Hours
An introduction to methods of data collection and analysis. Elementary statistics data are analyzed using computerized statistics programs. A discussion of research design and the philosophy of social science is also included. Students cannot receive credit for both SOC 410 and SOC 510. (YR)
Prerequisite(s): SOC 200 or SOC 201

SOC 411  Program Evaluation  3 Credit Hours
The application of social research procedures in assessing whether a human service program is needed, likely to be used, conducted as planned, and actually helps people in need. The course will cover research design and measurement as well as issues of how to get research findings utilized. Students cannot receive credit for both SOC 411 and SOC 511. (YR)
Prerequisite(s): PSYC 101 SOC 200 or PSYC 170 or PSYC 171 or POL 101 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

SOC 412  Men and Masculinities  3 Credit Hours
This course addresses the question, "What is a man?", in various historical, cross-cultural, and contemporary contexts. A major focus on the social and cultural factors that underlie and shape conceptions of manhood and masculinity in America as well as in a variety of societies around the globe. (AY)
Prerequisite(s): SOC 200 or SOC 201 or ANTH 101 or WST 275 or WGST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate

SOC 413  Qualitative Research  3 Credit Hours
Qualitative research methods involve the observation and study of people in their everyday lives, in their taken-for-granted worlds. Qualitative research seeks to combine close empirical observation with analytic techniques that demand (and teach) personal and social self-consciousness as necessary to an understanding of the social worlds of others. This course in qualitative methods is designed to acquaint students with field research theories and techniques. Students will gain hands on experience in participant observation, interviewing and the use of sociological scholarship. Qualitative Research Methods will prepare students to gather data, focus the data in a social scientific manner, analyze the data, and then organize it in reportable form.
Prerequisite(s): SOC 308

SOC 422  Structure of American Society  3 Credit Hours
An analysis of the institutional structure of American society, with a view of determining the degree of its integration. Students cannot receive credit for both SOC 442 and SOC 522. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

SOC 423  American Social Classes  3 Credit Hours
Stratification of American communities and society, a review of the findings of major studies and an introduction to methodology. Students cannot receive credit for both SOC 423 and SOC 523. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

SOC 426  Society and Aging  3 Credit Hours
Personal, interpersonal, and institutional significance of aging and age categories. Sociological dimension of aging based on social, psychological, and demographic factors. Attention to social networks and institutionalization. Students cannot receive credit for both SOC 426 and SOC 526. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

SOC 430  Population Problems  3 Credit Hours
Social causes and consequences of population structure and change. How variations in fertility, mortality, and migration arise and how they affect society. Illustrations from the United States and a variety of developed and underdeveloped countries. (YR)
Prerequisite(s): SOC 200 or SOC 201
SOC 435  Urban Sociology  3 Credit Hours
A descriptive study of the form and development of the urban community with respect to demographic structure, spatial and temporal patterns, and functional organization. The relationship of city and hinterland. Social planning and its problems in the urban community. Students cannot receive credit for both SOC 435 and SOC 535. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s): Can enroll if Level is Undergraduate

SOC 436  Personality and Society  3 Credit Hours
Deals with the forms and modes of change of personality, social structure, and culture; examines their interactions with body/population, niche/environment, and technology. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 439  Sociology of Professions  3 Credit Hours
Course begins with a review of the sociological literature on the professions. It will then focus on the medical, legal, and business/managerial professions as case studies of the development of professions in post-industrial society. Intrinsic to the definition of profession is "autonomy." The course will explore what is happening to professions and professional autonomy in highly bureaucratized and corporatized societies, where we speak of deprofessionalization and proletarianization of professions. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 440  Medical Sociology  3 Credit Hours
An analysis of health and illness behavior from the point of view of the consumer, as well as of medical professionals, the structure, strengths, and weaknesses of the medical care delivery system in the U.S.; the impact of culture and personality on illness behavior; and a study of the institution of medicine and activities of health care professionals. Students cannot receive credit for both SOC 440 and SOC 540. (F,W,S)
Prerequisite(s): SOC 200 or SOC 201

SOC 441  Sociology of the Auto Industry  3 Credit Hours
The American auto industry is examined in its relationship to the economic and political structures of 20th-century United States. This includes a focus on the social history of the industry as well as a discussion of the nature of auto work. Proposals for changing social relations at work are also examined. Concludes with an examination of the impact of the industry on a local community (Detroit). Students cannot receive credit for both SOC 441 and SOC 541. (F,W)
Prerequisite(s): SOC 200 or SOC 201

SOC 442  Sociology of Work  3 Credit Hours
Study of work roles in modern society. The impact of industrialization, professionalization, and unionization on the conditions of work, worker motivation, and job satisfaction. Career choice processes and career patterns, occupational status and prestige, and occupational associations are among the topics considered. Students cannot receive credit for both SOC 442 and SOC 542. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s): Can enroll if Level is Undergraduate

SOC 443  Gender Roles  3 Credit Hours
This course will investigate the development of gender roles in childhood and adolescence due to either innate physiological differences or sociological patterning, the effect of gender roles upon male-female relationships within our society, and the possibility of transcending sociological gender roles in alternate modes of living. Students cannot receive credit for both SOC 443 and SOC 543. (F,W,S).
Prerequisite(s): SOC 200 or PSYC 170 or PSYC 171 or SOC 201 or PSYC 101

SOC 444  The Medical Profession  3 Credit Hours
Professions are the hallmark of modern society, and the medical profession is a prototype of what is meant by a profession. This course will examine the nature and history of the American medical profession, how it developed and changed since the early 1800's. What is the nature of the profession today? What social forces have shaped it? What does the future hold? These are some of the questions the course will address. (W).
Prerequisite(s): SOC 200 or POL 201
Restriction(s): Cannot enroll if Class is Freshman

SOC 445  The Family  3 Credit Hours
The family as an institution shaped by other aspects of society, as a social system with its own dynamics, and as a primary group affecting the lives of its members. Historical and contemporary materials from the United States and other cultures. Students cannot receive credit for both SOC 445 and SOC 545. (F,W,S).
Prerequisite(s): SOC 200 or SOC 201

SOC 446  Marriage and Family Problems  3 Credit Hours
Sociological analysis of problems encountered within the institution of marriage with particular reference to such issues as choosing a marriage partner, sexual adjustment, occupational involvement, conflict resolution, child rearing, divorce and readjustment. Students cannot receive credit for both SOC 446 and SOC 546. (YR)
Prerequisite(s): SOC 200 or SOC 201

SOC 447  Family Violence  3 Credit Hours
Sociological analyses of various forms of family violence which occur disproportionately in the lives of girls and women. Topics such as incest, sexual abuse, date rape, wife battering, and elder abuse will be situated within the social and cultural context of contemporary gender relationships. Social and political responses to the phenomena will be examined. Students cannot receive credit for both SOC 447 and SOC 547. (YR)
Prerequisite(s): SOC 200 or SOC 301 or SOC 443 or PSYC 405 or WST 405 or SOC 201
Restriction(s): Can enroll if Level is Undergraduate

SOC 448  Comparative Health Care Sys  3 Credit Hours
An introduction and overview of the English, Swedish and People's Republic of China health care systems. Focus on cultural context and other organizational characteristics, unique features, approaches and ability to solve problems. Emphasis on how the three systems help us understand the American health care system. Students cannot receive credit for both SOC 448 and SOC 548. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s): Can enroll if Level is Undergraduate
**SOC 449  Black Family in Contemp Amer  3 Credit Hours**
The African-American family is examined in relationship to the historical and contemporary forces that have shaped its characteristic patterns of family life. These forces include the influence of slavery, urbanization, racial discrimination and urban poverty. The patterns of family life include parental roles, family structure, kinship relations, and gender roles. (YR)

**Prerequisite(s):** SOC 200 or SOC 201

**SOC 450  Political Sociology  3 Credit Hours**
Examines how society affects the distribution and exercise of power through analyzing linkages between power, participation, and perspectives. Studies of political participation and social organization, ideology and social conflict, as well as political socialization, represent some of the major parameters. Students cannot receive credit for both SOC 450 and SOC 550. (YR)

**Prerequisite(s):** SOC 200 or SOC 201

**Restriction(s):**
Can enroll if Level is Undergraduate

**SOC 451  Family, Sexuality, Rights  3 Credit Hours**
This course investigates the changing possibilities for forming families and expressing sexuality, with a focus on how nation states and legal and cultural systems construct and respond to these changes. Selected topics include the meanings of sex, love, marriage, and relatedness in different historical moments; struggles for recognition of varied kinship and family arrangements, such as interracial, interfaith, same-sex, polygamous and multi-partner relationships; and new technologies and their implications for family life. (YR)

**Prerequisite(s):** (WGST 303 or SOC 303 or ANTH 303 or PSYC 303 or HUM 303) or (SOC 200 or SOC 201) or (ANTH 101 or ANTH 202)

**Restriction(s):**
Can enroll if Class is Sophomore or Junior or Senior

**SOC 452  Marxism  3 Credit Hours**
This survey of Marxist and neo-Marxist thought discusses philosophy, economic history, and socialism. Topics include Marx’s view of the nature of man, class conflict, the dialectic in history, the labor theory of value, monopoly capital and imperialism. Problems of socialist societies such as economic development and rule of elites will also be discussed. (AY)

**Prerequisite(s):** SOC 200 or POL 101 or ECON 201 or ECON 202 or SOC 201

**SOC 453  Sociology of Law  3 Credit Hours**
Various aspects of the relationship between law and society are explored. After a look at processes of law making, attention is turned to the administration of justice. This involves a study of the activities of legislatures, courts, police, and correctional agents. Students cannot receive credit for both SOC 453 and SOC 553. (YR)

**Prerequisite(s):** SOC 200 or SOC 201

**Restriction(s):**
Can enroll if Level is Undergraduate

**SOC 454  Mental Health and the Law  3 Credit Hours**
Courts and legislatures now control much of the work of mental health professionals such as social workers, counselors, therapists, and psychologists. This course looks at problems encountered in putting the laws and policies into effect. These implementation problems are much the same in other areas of government action, such as poverty programs and pollution control. Students cannot receive credit for both SOC 454 and SOC 554. (YR)

**Prerequisite(s):** SOC 200 or SOC 201

**Restriction(s):**
Can enroll if Level is Undergraduate

**SOC 455  Sociology of Religion  3 Credit Hours**
Religion as a social institution; its purposes, methods, structure, and beliefs, and its relation to other institutions. Students cannot receive credit for both SOC 455 and SOC 555. (YR)

**Prerequisite(s):** SOC 200 or SOC 201

**Restriction(s):**
Can enroll if Level is Undergraduate

**SOC 4555  Immigrant Cultures and Gender  3 Credit Hours**
The history and culture of immigration since 1850, including (1) formation and perseverance of immigrant communities and interethnic boundaries; (2) relations between the homeland and the immigrant; and (3) impact of migration on family life and gender roles.

**Prerequisite(s):** ANTH 101 or WGST 303 or SOC 200 or SOC 201

**Restriction(s):**
Can enroll if Class is Junior or Senior

**SOC 456  Health Care and the Law  3 Credit Hours**
A sociological study of legal issues in health care, including regulation of hospitals, consent for treatment, confidentiality, experimentation, family planning, children's rights, access to health care. The emphasis will be on the organizational and personal consequences of legal requirements. Junior/Senior standing is a requirement. Students cannot receive credit for both SOC 456 and SOC 556. (AY)

**Prerequisite(s):** SOC 200 or SOC 201 or POL 364

**Restriction(s):**
Can enroll if Class is Junior or Senior or Graduate

**SOC 457  Family, Aging and the Law  3 Credit Hours**
The law exerts a powerful impact on the family and the elderly. This course interprets the effects of laws concerning guardianship, incompetence, nursing home regulation, marriage, divorce, custody, adoption, abortion, and child sexual abuse.

**Prerequisite(s):** SOC 200 or SOC 201

**SOC 458  Sociology of Education  3 Credit Hours**
Education as a social institution; its purposes, methods, structure, and philosophy, and its relation to other institutions, particularly in the urban setting. Students cannot receive credit for both SOC 458 and SOC 558. (YR)

**Prerequisite(s):** SOC 200 or SOC 201

**SOC 459  America in a Global Society  3 Credit Hours**
Social changes in America are studied from an internal and an external perspective. The internal dynamics of social change emphasize the role of social movement, e.g., the impact of the civil rights movement on American culture and politics. The external perspective sees America as part of a changing global society. The development of the capitalist world system from its origin in Western Europe to its present global reach is examined. Contemporary American social problems are examined in relation to America's position in a rapidly changing world. Students cannot receive credit for both SOC 460 and SOC 560. (AY)

**Prerequisite(s):** SOC 200 or SOC 201
SOC 461 Cops & Cons: Women in Prison  3 Credit Hours
Course uses contemporary theories of gendered organizations to frame analyses of prison policies and practices in employment and incarceration as they reflect and reproduce gender inequalities. Analyses will be framed within a restorative justice model, that is, a critique of the current criminal justice system of retributive justice and a paradigm of what a alternative system could be.
Prerequisite(s): SOC 200 or SOC 201 or WST 275 or WGST 275 or CRJ 240 or CRJ 300 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Can enroll if Class is Junior or Senior

SOC 465 Deviant Behavior/Soc Disorganz  3 Credit Hours
A general analysis of the concept of social deviance and social disorganization: factors producing each condition, the effects of social control measures on the course of deviance and disorganization consequences for the social system, and the relationship between the two. Students cannot receive credit for both SOC 465 and SOC 565. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior

SOC 466 Drugs, Alcohol, and Society  3 Credit Hours
Analyses of the sociology of substance use and abuse. Provides a sociological framework for understanding issues and evaluating our nation's responses to the phenomenon of drug use. Drawing on sociocultural and social psychological perspectives, this course systematically examines the social structure, social problems, and social policy aspects of drugs in American society. Prerequisite or permission of instructor. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior

SOC 467 Drugs, Crime, and Justice  3 Credit Hours
Provides a comprehensive analysis of the current state of research on interactions between crime and drug use. Examines drug distribution, organization of drug systems, and mechanisms of social control of drug systems. Analyzes the social problems associated with drugs and crime. The course also focuses on drug-law enforcement and public policy strategies for dealing with drugs and crime. Prerequisite or permission of instructor. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior

SOC 469 Juvenile Delinquency  3 Credit Hours
Prerequisite(s): SOC 200 or SOC 201

SOC 473 Race, Crime and Justice  3 Credit Hours
This course is an analysis of race and its relation to crime in the criminal justice system. Students will analyze and interpret the perceived connection between race and crime, while exploring the dynamics of race, crime, and justice in the United States. This course is designed to familiarize students with current research and theories of racial discrimination within America's criminal justice system.
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Cannot enroll if Class is Freshman

SOC 475 Diversity ISS in Mental Health  3 Credit Hours
Diversity Issues in Mental Health explores varied cultural descriptions and models of mental illness. By focusing on the ways that culture shapes how people experience, and respond to, mental illness this class explores cultural representations of mental illness, ranging from discrete illness resulting from a chemical imbalance to a profound threat to order. We seek to understand the cultural, personal, and political underpinnings of mental illness and medical practices in societies throughout the world. The course utilizes an interdisciplinary perspective, drawing from multiple sources of information regarding mental health issues, including feminism, psychiatry, history, sociology, and literature. Issues raised throughout the course include the ways gender, race, culture, religion, and stigma influence the diagnosis of mental illness, patterns of help-seeking behavior, formation of comprehensive mental health policy, and treatment options.
Prerequisite(s): WGST 303 or ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 336 or HPS 336
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore

SOC 476 Inside Out Prison Exchange  4 Credit Hours
This community-based course, taught in a local correctional facility, brings university students and incarcerated students together to study as peers. Together students explore issues of crime and justice, drawing on one another to create a deeper understanding of how these issues affect our lives as individuals and as a society. The course creates a dynamic partnership between UMD and a correctional facility to allow students to question approaches to issues of crime and justice in order to build a safer and more just society for all. The course encourages outside (UMD) students to contextualize and to think deeply about what they have learned about crime and criminals and to help them pursue the work of creating a restorative criminal justice system; it challenges inside students to place their life experiences into larger social contexts and to rekindle their intellectual self-confidence and interest in further education.
Restriction(s):
Can enroll if Class is Junior or Senior

SOC 477 Social Welfare  3 Credit Hours
The practice of social work is examined within the context of the development of the social service professions and welfare institutions in American society. Social welfare is a concept that encompasses the provision of material resources, as well as regulation and protection of clients. Changes in welfare policy are analyzed in relationship to other institutional changes in American society. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 478 Social Work Internship  3 to 6 Credit Hours
Provides field experience in social welfare or criminal justice agencies, e.g., for children/adolescents, in residential programs, in abuse remediation, in probation, for chemical dependencies, in victim advocacy, for elderly, in prisons, for special needs populations, in court services, and for families and communities. Supervision by approved field instructors. An internship of 80 hours is required for three (3) credits. Instructor and student will work together to determine appropriate intern placement. Approval of instructor is required. (OC).
Prerequisite(s): SOC 200 or SOC 201
SOC 479 Comparative Hlth Systems:Trip  3 Credit Hours
A unique combination of lectures, field trips, visits with general practitioners, specialists, hospital observations, talks with health policy planners, researchers, and many others. Personal experience in two health care systems. Permission of instructor. Junior/Senior standing required. Students cannot receive credit for both SOC 479 and SOC 579. (AY).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior

SOC 481 Gender and Globalization  3 Credit Hours
Mass media, politics, and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women’s lives, gender relations, and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism, and environmental challenges. Rather than survey international women’s movements, this course explores how globalization reformulates identities and locations and the political possibilities they create. (AY).
Prerequisite(s): ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters

SOC 482 Methods of Social Work Pract  3 Credit Hours
Examination of social work practice methods and approaches to social problems, contexts of practice and targets of change. Focus is on knowledge and skills each practice method requires to effect personal and social change. (YR).
Prerequisite(s): SOC 200 or SOC 201

SOC 483 Images of Organizations  3 Credit Hours
Formal bureaucratic organizations such as government agencies, hospitals, and colleges are a distinctive feature of modern industrialized societies. Analysis of types of formal organizations, their goals, structure, and consequences for intra- and inter-organizational behavior helps to understand how to deal with a complex world. Students cannot receive credit for both SOC 483 and SOC 583. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Level is Undergraduate

SOC 484 Violent Against Women  3 Credit Hours
Course examines local and global social violence against women outside family and other intimate relationships. Students consider violations against women’s human rights through the life cycle, which are often sanctioned under the guise of cultural practices and misinterpretations of religious tenets. Topics include sex-selective abortion and female infanticide (the "missing millions"); female genital mutilation and cosmetic surgeries; prostitution and pornography; trafficking in women; sexual harassment; and women’s experiences of war as soldiers, non-combatants and refugees. Topics are “paired”, that is, students compare understandings of Western and non-Western social practices related to gender. Students examine both institutionalized sexism and racism, as part of political, economic, and social systems, and sexism and racism as realities affecting individual women’s lives.
Prerequisite(s): SOC 200 or SOC 201 or WGST 303 or HUM 303 or PSYC 303 or ANTH 303 or SOC 303 or WGST 375 or HUM 275 or PSYC 275 or SOC 275 or ANTH 275 or WST 275
Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

SOC 490 Advanced Topics in Sociology  3 Credit Hours
Examination of problems and issues in selected areas of sociology. Title as listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs.

SOC 490A Advanced Topics in Sociology  3 Credit Hours
TOPIC: Diasporas and (Trans) Nationalism: Gender, Race, and Post-Coloniality. An interdisciplinary and comparative inquiry into historical & contemporary linkages between gender regimes, national formations, and legacies of colonialism as they interact at “home” and in “diasporas.” Using multi-media and multi-genre pedagogical tools (conceptual and methodological writings; narratives and biographies; guest lectures; films), we study & critique different perspectives on how the dialectics of geography, positionality, and social structures shape the ways in which we imagine “home”, “homeland”, and “back home.” We examine gendered politics of the colonial project 1) in early days of colonization; 2) during struggles of decolonization; and 3) “post-colonial” geographies’ While becoming familiar with “classics” in nationalism/transnationalism, gender, colonialism, and diaspora, we will explore their applicability to specific case studies in European and American contexts as well as in Africa, Asia, and the Middle East.

SOC 497 Senior Research Seminar  3 Credit Hours
This course is intended as the culmination of a student’s prior work in sociology. Each student will conduct an applied research project that draws upon sociological concepts and issues. The product of this research will be an essential component of the student’s concentration portfolio.
Prerequisite(s): SOC 410

SOC 498 Independent Study  1 to 3 Credit Hours
Analytical assignments in sociology. No more than a total of six credit hours of SOC 398 and SOC 498 may be applied toward concentration. Permission of instructor required. (F,W,S).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Junior or Senior
Can enroll if Level is Undergraduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
Spanish (SPAN)

SPAN 101  Beginning Spanish I  0 or 4 Credit Hours
First course in the two-course elementary Spanish sequence. Listening comprehension, speaking, reading, writing, and culture are emphasized. Course materials promote the use of language to communicate with others and to function in Hispanic culture. (F,S).

SPAN 102  Beginning Spanish II  0 or 4 Credit Hours
Second course in the two-course elementary Spanish sequence. Continued emphasis on culture and the four skills of listening, speaking, reading, and writing. (F,W,S).
Prerequisite(s): SPAN 101 or SPL with a score of 102 or SPL with a score of 201 or SPL with a score of 200 or SPL with a score of 301 or SPL with a score of 302

SPAN 201  Intermediate Spanish I  0 or 4 Credit Hours
An intermediate-level course designed to increase the proficiency in listening, speaking, reading, and writing within a cultural context. Emphasis is placed on acquiring new vocabulary and expanding the use of grammar structures. Course materials promote the use of language to communicate with others and to function in Hispanic culture. (F).
Prerequisite(s): SPAN 102 or SPL with a score of 202 or SPL with a score of 301 or SPL with a score of 302 or SPL with a score of 201

SPAN 202  Intermediate Spanish II  0 or 4 Credit Hours
Continuation of SPAN 201 with emphasis on the development of all language skills. (W).
Prerequisite(s): SPAN 201 or SPL with a score of 202 or SPL with a score of 301 or SPL with a score of 302

SPAN 254  Spanish Conversation  2 Credit Hours
This course provides extensive oral practice to reinforce vocabulary and grammar concepts and to improve pronunciation. Conversational skills are developed through discussion and use of communicative exercises, activities, and games. (OC).
Prerequisite(s): SPAN 102

SPAN 301  Adv Conversation and Comp I  3 Credit Hours
An advanced course in conversation, composition, and syntax designed to strengthen existing skills. An intensive review of grammar combined with pronunciation and vocabulary exercises should enable the student to make progress in composition and conversation. Oral and written assignments will be based on readings from contemporary sources. (F).
Prerequisite(s): SPAN 202 or SPL with a score of 301 or SPL with a score of 302

SPAN 302  Advan Conversation Comp II  3 Credit Hours
Continuation of SPAN 301 with emphasis on the command of conversational and writing skills. (W).
Prerequisite(s): SPAN 301 or SPL with a score of 302

SPAN 305  Language of Business  3 Credit Hours
An introduction to the language and practices of the Hispanic world of business. Particular emphasis will be placed on learning the terminology used in typical business correspondence and documents. A variety of businesses will be examined and practice in reading and composing business letters will be provided. (AY).
Prerequisite(s): SPAN 301

SPAN 301  Intro to Hispanic Linguistics  3 Credit Hours
This class provides students with a systematic overview of key areas of Spanish linguistics, including the sound system, forms of words, syntactic patterns, the development of the language, and regional, social and contextual variation.
Prerequisite(s): SPAN 301
Restriction(s):
Can enroll if Level is Undergraduate

SPAN 321  Spanish Food and Cuisine  3 Credit Hours
Spanish 321 is a course intended to provide students with an overview of Spanish Peninsular culture, civilization and history through the analysis and exposure to its foods, products, dishes and social events around its eating habits. (OC)
Prerequisite(s): SPAN 301

SPAN 350  Masterpiece of Latin Amer Lit  3 Credit Hours
A survey of Latin American literature from the colonial period to the present. Emphasis will be placed on such influential and outstanding contemporary authors as Borges, Garcia Marquez, Paz, Poniatowska, Rosario, Ferre, and Rulfo. (AY).
Prerequisite(s): SPAN 301

SPAN 351  Masterpieces of Spanish Lit  3 Credit Hours
An overview of Spanish Peninsular literature beginning with the Medieval period. Students read and discuss outstanding works from a variety of literary periods and genres. Works by authors such as Cervantes, Lope de Vega, Calderon, Galdos, Unamuno, Lorca, and Goytisolo are included. (AY).
Prerequisite(s): SPAN 301

SPAN 353  Latino Literature  3 Credit Hours
The course offers a selection of literary representations from a range of Latino groups with an emphasis on Cubans, Dominicans, Mexicans, and Puerto Ricans in the United States. Students examine these minority groups and the realities of their migrations through a variety of literary periods and genres.
Prerequisite(s): SPAN 301

SPAN 355  Latin American Civiliztn Cult  3 Credit Hours
A survey of Hispanic culture in the Americas from its inception to the present. The course examines the contributions of the Latin American ethnic groups and explores the relationship between Latin America's past and contemporary achievements and problems.
Prerequisite(s): SPAN 301

SPAN 357  Latin American Civiliztn Cult  3 Credit Hours
A survey of Hispanic culture in the Americas from its inception to the present. The course examines the contributions of the Latin American ethnic groups and explores the relationship between Latin America's past and contemporary achievements and problems.
Prerequisite(s): SPAN 301

SPAN 358  Spain in the Twentieth Century  3 Credit Hours
A cultural study of the institutions, issues, and values of Spanish society in the twentieth century as seen in art, architecture, music, literature, film, and the media. Special emphasis is placed on contemporary Spain from the end of the Franco era through the development of a democracy. (OC).
Prerequisite(s): SPAN 301
SPAN 385  Spanish Across the Curriculum  1 Credit Hour
Course is attached to an upper-level course in another discipline and taken concurrently with it. Course materials in Spanish are related to the subject matter of the second course and are discussed with a Spanish-area faculty member. Materials are also integrated into the assignments of the second course. (OC).
Prerequisite(s): SPAN 202

SPAN 390  Topics in Spanish  3 Credit Hours
Examination of problems and issues in selected areas of Spanish. Title as listed in Schedule of Classes will change according to content. Course may be repeated for credit when specific topics differ. (OC).
Prerequisite(s): SPAN 301

SPAN 398  Independent Studies in Spanish  1 to 6 Credit Hours
Readings or analytical assignments in Spanish in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor. Students may receive a maximum of six credit hours for a combination of SPAN 398 and SPAN 399. (F,W).

SPAN 399  Independent Studies in Spanish  1 to 6 Credit Hours
Readings or analytical assignments in Spanish in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor. May be repeated for a maximum of 6 credit hours. (F,W).

SPAN 406  Advanced Written Expression  3 Credit Hours
Through the reading and analysis of authentic materials students will develop and improve their writing skill in various narrative styles such as dialogue, description, essay or research paper. Writing as a process involving editing and revision will be emphasized. (AY).
Prerequisite(s): SPAN 302

SPAN 409  Oral Expression  3 Credit Hours
A course designed to increase the conversational skills of advanced-level students. A variety of activities and assignments will help students refine their oral accuracy and expand upon the number of social situations in which they can function. (AY).
Prerequisite(s): SPAN 302

SPAN 420  Introduction to Translation  3 Credit Hours
An introduction to the history, theory and practice of English-to-Spanish and Spanish-to-English translation. Emphasis will be placed on material selected from the fields of business and commerce, the legal system, and brief passages of literature. Class projects will include translations of advertisements, brochures, and documents provided by area businesses. (AY).
Prerequisite(s): SPAN 302

SPAN 421  Advanced Translation  3 Credit Hours
The course will continue to apply the translation theory and techniques introduced in SPAN 420, and it will continue to focus on English-to-Spanish and Spanish-to-English non-literary translation. Emphasis will be placed on materials selected from the fields of business, advertising, and legal discourse. Class projects will include translation of advertisements, legal documents, and business brochures. (AY,W).
Prerequisite(s): SPAN 305 and SPAN 420

SPAN 450  Hispanic Cinema  3 Credit Hours
An introduction to the history and critical analysis of representative Hispanic films of major directors from Spain and Latin America. Emphasis will be placed on the historical, political, and cultural content of these films as they reflect the problems, customs, and contradictions of Hispanic culture. (AY).
Prerequisite(s): SPAN 301

SPAN 451  Spanish Film  3 Credit Hours
An introduction to the history and critical analysis of representative Spanish films of major directors from Spain. Emphasis will be placed on the historical, political, social and cultural content of these films as they reflect the problems, customs, and contradictions of Spanish culture. 
Prerequisite(s): SPAN 301

SPAN 465  Contemporary Spanish Lit  3 Credit Hours
Spanish 465 provides students with an overview of Contemporary Spanish Peninsular literature and culture through the analysis of narrative texts. Selected readings provide the basis for stylistic and textual analysis. Fostering critical thinking through an analysis of texts is the primary focus of the class. The course specifically examines narrative works that belong to the Spanish literary canon produced after the end of an almost forty year dictatorial regime in 1975. The literary works are deeply rooted in Spain's social and cultural history. Consequently, they describe the contemporary socio-political scene in which they were produced and look at the uncertain future of this reborn nation.
Prerequisite(s): SPAN 301
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

SPAN 490  Topics in Spanish  3 Credit Hours
Examination of problems and issues in selected areas of Spanish language, literature, culture and/or civilization. Title as listed in the Schedule of Classes changes according to content. Course may be repeated for credit when specific topic differs. (OC).

* An asterisk denotes that a course may be taken concurrently.

Speech (SPEE)

SPEE 101  Principles of Speech Comm  3 Credit Hours
Course is designed to help students become better producers and consumers of oral communication in a diverse democratic society. Students will gain experience and confidence in fundamentals of effective speech writing, presentation, and criticism. Emphasis is placed on researching and selecting credible sources, integrating supporting material, rhetorical invention, audience analysis, speech organization, topic development, delivery skills, visual aids, and effective language.

SPEE 310  Interpersonal Communication  3 Credit Hours
Course adopts a discussion and activities-centered approach to understanding and applying principles and methods associated with successful interpersonal communication. Students will study and refine the communication of relationship in dyadic settings as it is influenced by cultural and gender differences. Non-verbal variables, listening, and assertive communication are just a few of the areas of discourse that will be studied in relationship to expanding cultural and gender awareness.
Prerequisite(s): SPEE 101

SPEE 320  Public Argument and Advocacy  3 Credit Hours
Students gain perspectives and experience as both critical consumers and informed producers of public discourse. Students will become familiar with basic theories of rhetorical action, engage in critical analysis of varied public arguments and rhetorical events, and prepare speeches of advocacy intended for both real and imagined audiences. (YR).
Prerequisite(s): SPEE 101
SPEE 330  Argumentation and Debate  3 Credit Hours
This course covers the logical and legal foundations of the argumentation process. Offers practical and theoretical experience in analysis, reasoning, case-building, evaluation of evidence, refutation, and cross-examination. (AY).
Prerequisite(s): SPEE 101

SPEE 340  Persuasion & Social Movements  3 Credit Hours
Course examines theories of persuasion by considering the interrelationship among social movements, the public sphere, and persuasive practices. Through lectures, discussions, and analysis of speeches and other persuasive artifacts, the course focuses on how citizens employ persuasive strategies and tactics to effect change in their community and society at large. Emphasis will be placed on case studies (both social movements and other persuasive enterprises) that illustrate the theory and practice of persuasion.
Prerequisite(s): SPEE 101

SPEE 399  Independent Studies in Speech  1 to 3 Credit Hours
Readings or analytical assignments in speech in accordance with the needs and interests of those enrolled and agreed upon by the student and advising instructor. (F,W).

SPEE 430  Small Group Communication  3 Credit Hours
A survey of small group behavior from the perspectives of theory, research, and practice. Activities and discussion will emphasize skills in leadership, problem solving, policy making, and the development of consensus. Students cannot receive credit for both SPEE 430 and SPEE 530. (AY).
Prerequisite(s): SPEE 101
Restriction(s):
Cannot enroll if Class is Graduate

SPEE 442  20th Century Public Argument  3 Credit Hours
This class is a survey of American public address in the 20th century. Students will examine and critically analyze several of the most significant speeches and rhetorical movements of the last one hundred years. Through lectures, discussions, and analysis of speeches and other artifacts, we will focus on the relationship between rhetoric and history, and how theories of rhetorical action help us appreciate the role of discourse in the effective functioning of a democratic system. Students will learn to utilize several critical perspectives as a means of understanding both historical and contemporary political discourse. (W).
Prerequisite(s): SPEE 101

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Statistics (STAT)

STAT 263  Introduction to Statistics  3 Credit Hours
Frequency distributions and descriptive measures. Populations, sampling, and statistical inference. Elementary probability and linear regression, use of statistical computer packages to analyze data. Students intending to elect this course should have taken at least one year of high school algebra. (F,W,S).

STAT 301  Biostatistics I  3 Credit Hours
Samples and populations, quantitative vs. categorical data; clinical vs. epidemiological studies; comparative displays and analysis; linear regression. Estimation of effect size is emphasized along with the P-value for a statistical test: difference of means in simple comparative data together with a confidence interval and t-test; relative risk for appropriate categorical data; slope of a regression line together with a confidence interval and t-test. Study design is emphasized: clinical trials in experimental settings; case-control and cohort studies in epidemiological settings. Students are expected to make presentations interpreting and reporting the results of research from the literature. Students can receive credit for only one of MATH 301, MATH 363, STAT 301, CRJ 383, SOC 383, STAT 325.
Prerequisite(s): MATH 113 or MATH 115

STAT 305  Intro. to Data Science  3 Credit Hours
With increasing availability of data, companies, governments, and nonprofits alike are striving to convert this data into knowledge and insight. This course will provide students with the basic skill set needed to handle such data. The course will focus on three broad areas: inferential thinking, computational thinking, and real-word applications. We will discuss data collection, data cleaning and exploratory analysis of data so that students can connect the data to the underlying phenomena and be able to think critically about the conclusions that are drawn from the data analysis. The students will also learn how to write short programs to be able to automate the data analysis process developing an applied understanding of different analytics methods, including linear regression, logistic regression, clustering, data visualization, etc. Most of the material will be taught using real world data. (YR)

STAT 325  Applied Statistics I  3 Credit Hours
A study of the fundamental concepts and methods of probability and statistics. Topics include counting problems, discrete probability, random variables and probability distributions, special distributions, sampling distributions, the central limit theorem, introduction to hypothesis testing, and the use of statistical computer packages for data analysis. Students can receive credit for only one of MATH 363, STAT 363, SOC 383 and STAT 325. (F,W).
Prerequisite(s): MATH 113 or MATH 115 or MPLS with a score of 116

STAT 326  Applied Statistics II  3 Credit Hours
A continuation of STAT 325. This course treats both the principles and applications of statistics. Elementary theory of estimation and hypothesis testing, the use of the normal, chi-square, F and t distributions in statistics problems will be covered. Other topics are selected from regression and correlation, the design of experiments, analysis of variance, analysis of categorized data, nonparametric inference, and sample surveys. (W).
Prerequisite(s): STAT 325

STAT 330  Intro to Survey Sampling  3 Credit Hours
An introduction to survey sampling techniques assuming only-aimed knowledge of higher-level mathematics. Topics include: simple and stratified random sampling, estimation, systematic sampling, simple and two stage cluster sampling, population size estimation.

STAT 390  Topics in Applied Statistics  3 Credit Hours
A course designed to offer selected topics in applied statistics. The specific topic or topics will be announced together with the prerequisites when offered. Course may be repeated for credit when specific topics differ. (OC)
Restriction(s):
Can enroll if Level is Undergraduate
TOPIC TITLE: Multivariate Statistical Analysis A coverage of commonly encountered statistical and multivariate techniques, while assuming only a limited knowledge of higher-level mathematics. Topics include: multivariate analysis of variance, multivariate regression, principal components and factor analysis, canonical correlation, and discriminant analysis.

Prerequisite(s): STAT 425 or STAT 326

STAT 440 Design and Analysis of Experiments 3 Credit Hours
An introduction to the basic methods of designed experimentation. Fixed and random effects models together with the analysis of variance techniques will be developed. Specialized designs including randomized blocks, Latin squares, nested, full and fractional factorials will be studied. A statistical computer package will be used. (W).

Prerequisite(s): STAT 425 or STAT 326

STAT 450 Multivariate Statistical Analysis 3 Credit Hours
An introduction to commonly encountered statistical and multivariate techniques, while assuming only a limited knowledge of higher-level mathematics. Topics include: multivariate analysis of variance, multivariate regression, principal components and factor analysis, canonical correlation, and discriminant analysis.

Prerequisite(s): STAT 430

STAT 455 Environmental Statistics 3 Credit Hours
The primary objective of the course is to introduce statistical techniques to make data-driven decisions to students majoring in the environmental and biological sciences. This course aims to nurture the importance of statistical methods to enhance the understanding of issues related to environmental sciences. A one-semester course cannot be exhaustive in depth and width of literature but the aim of this course is to create interest and encourage students to delve more into the subject. (AY)

Restriction(s):
Can enroll if Level is Undergraduate

STAT 460 Time Series Analysis 3 Credit Hours
An introduction to time series, including trend effects and seasonality, while assuming only a limited knowledge of higher-level mathematics. Topics include: linear Gaussian processes, stationarity, autocovariance and autocorrelation; autoregressive (AR), moving average (MA) and mixed (ARMA) models for stationary processes; likelihood in a simple case such as AR(1); ARIMA processes, differencing, seasonal ARIMA as models for non-stationary processes; the role of sample autocorrelation, partial autocorrelation and correlograms in model choice; inference for model parameters; forecasting: dynamic linear models and the Kalman filter.

Prerequisite(s): STAT 430

STAT 490 Topics in Applied Statistics 3 Credit Hours

STAT 490A Topics in Applied Statistics 3 Credit Hours

TOPIC TITLE: Multivariate Statistical Analysis A coverage of commonly encountered statistical and multivariate techniques, while assuming only a limited knowledge of higher-level mathematics. Topics include: Multivariate analysis of variance, multivariate regression, principal components and factor analysis, canonical correlation, discriminant analysis, and cluster analysis.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Urban and Regional Studies (URS)

URS 300 Urban and Regional Studies 3 Credit Hours
In this course we will explore the field of urban and regional studies. The scope of readings is inter-disciplinary, spanning the environmental, aesthetic, social, economic, geographic, historical, political and cultural aspects of cities, suburbs and regions. The interrelationship between the spatial organization of a city, patterns of social and economic inequality, delivery of services, the relationship between culture and public space, as well as the processes of urban and regional change will all be considered. Problems such as race and class inequality will also be examined. Special attention will be given to issues of relevance in the Detroit metropolitan region (e.g. spatial, economic, cultural, political and social impacts of the loss of manufacturing jobs). Students will be introduced to methods of social scientific analysis and will begin to apply those methods to researching urban and regional community groups, enterprises and social movements.

URS 301 SiD--Field Internship 3 Credit Hours
Full Course Title: Semester in Detroit: Field Internship This course serves as a field internship course for the Semester in Detroit (SiD) program. Students in this course work for 200 hours in an internship with a community-based organization in Detroit over 12 weeks (average of 16 hours per week). They also participate in an internship reflection seminar (co-requisite). Students must apply to, and be accepted by, UM-Ann Arbor’s in Detroit program to enroll in this course. (F, W, S)

Corequisite(s): SSCI 302

URS 302 SiD--Intern Seminar 2 Credit Hours
This course serves as a core course for the Semester in Detroit (SiD) program. The primary purpose of this class is to provide a supportive, yet challenging learning space for reflecting on your Detroit internship experiences this semester. There are three main sources of material for this class: you, the internship, and Detroit. While, in theory, each is distinct, in practice, all three are intertwined and interact and affect one another. Your challenge will be learning to see more clearly the interactions among these domains. Students must apply to, and be accepted by, UM-Ann Arbor’s Semester in Detroit program to enroll in this course.

URS 360 SiD--20th Cent Detroit History 3 Credit Hours
This course serves as the core course for the Semester in Detroit (SiD) program. It examines the transformation of Detroit from the late 19th, through the 20th and into the 21st Centuries. Our goal is to identify the main forces and patterns of change in Detroit’s past that have shaped the contemporary city you encounter today. Thus, the course is organized chronologically, but we will be exploring the city’s history alongside consideration of contemporary social issues, challenges, and debates. Course material will include a range of readings, films, and excursions. Through discussion of this material and in written assignments, the course encourages you to develop your own interpretation of the circumstances, challenges and opportunities currently facing the city. Students must apply to, and be accepted by, UM-Ann Arbor’s Semester in Detroit program to enroll in this course. (F, W, S)

URS 390 Topics Urban and Regional Studies 1 to 3 Credit Hours
Problems and issues in selected areas of urban and regional studies. Title as listed in Schedule of Classes changes according to content. Course may be repeated for credit when specific topic differs.
**URS 450 Sr Capstone in Community Rsrch 3 Credit Hours**
The capstone course is designed to assist students in integrating the concepts, theories, and methods of inquiry or urban studies into research for or in the surrounding metropolitan area. Open to students in urban and regional studies who have completed their community-based learning requirement for the concentration.

**URS 485 Urban Regional Stud Internship 3 to 6 Credit Hours**
The internship offers students the opportunity to learn and apply concepts learned in Urban and Regional Studies coursework to real world settings in municipal and regional government offices, non-profit and community organizations, or businesses dedicated to design, development, or data. The student has 8-16 hours of unpaid work per week under the guidance of a faculty advisor. Primarily for junior or senior URS students or other qualified applicants. Up to 6 credits can be used to fulfill the community-based research requirement for urban and regional studies concentrators, with the approval of the URS director.

**Prerequisite(s):** URS 300

**Restriction(s):**
Cannot enroll if Class is Freshman

**URS 499 Independent Study 3 Credit Hours**
Readings, community-based research and analytical assignments in accordance with the needs and interests of the student and approval of the instructor. Students must submit a written proposal of study for approval. In addition, students electing to take this course in partial fulfillment of their community-based research must get approval from the Director of the Urban and Regional Studies program. (F,W,S)

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Women's and Gender Studies (WGST)**

**WGST 303 Intro to Women's & Gender Stud 3 Credit Hours**
This course provides an interdisciplinary overview of the key theories and topics in Women's and Gender Studies. Special attention is given to how gender intersects with class, race, nationality, religion and sexuality to structure women's and men's lives. Students are also introduced to methods of gender analysis and will begin to apply these methods to topics such as women and health, gender roles in the family, violence against women, and gendered images in the mass media.

**Restriction(s):**
Cannot enroll if Class is Freshman

**WGST 315 Body Image and Culture 3 Credit Hours**
This course examines the biological and sociocultural construction of body image in both men and women. We explore such cultural and social practices as nudity, tattooing, piercing, scarification, dietary habits, physical activity and sports performance and their associated myths and realities. We explore how the human body is a terrain of contested meaning within society. The course provides an examination of the causes and consequences of women’s poor body image, contemporary and historically. Course materials include case studies from North America, Europe, Africa, Asia and the Pacific.

**Prerequisite(s):** ANTH 101 or WST 275 or WGST 275 or WGST 303 or PSYC 275 or ANTH 275 or HUM 275 or PSYC 303 or ANTH 303 or SOC 303 or HUM 303 or SOC 275

**WGST 325 Gender, Science, & Engineering 3 Credit Hours**
Explores some of the history of women in science and engineering, the current status of women in science and engineering, and feminist theory in research. Topics include cultural influences on women in science and engineering, careers and life balance, and a feminist approach to scientific and engineering teaching and research.

**WGST 326 Poverty and Discrimination 3 Credit Hours**
An analysis of the economic aspects of poverty and discrimination. Emphasis on the theoretical economic causes of poverty and the economic bases for discriminatory behavior, the impact of poverty and discrimination on individuals and society and the effect of reform policies on the two problems.

**Prerequisite(s):** ECON 201 and ECON 202

**WGST 335 Women in Medieval Art 3 Credit Hours**
Women have often been regarded as the second sex of the middle ages due to the misogynistic attitudes of that era. Recent scholarship, however, has unearthed a significantly more complex picture. Through a study of visual representations of women in medieval art, this course will examine women's roles in the creation and patronage of art and literature, economic and family issues, and women's participation in new and innovative forms of religious piety.

**Prerequisite(s):** ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106 or WGST 275 or WGST 303 or HUM 275 or HUM 303 or ANTH 275 or ANTH 303 or PSYC 275 or PSYC 303 or SOC 275 or SOC 303 or WST 275

**WGST 336 Perspectives in Women's Health 3 Credit Hours**
Topic: Perspectives in Women's Health. This course examines women's health issues across the human lifespan, using feminist and sociocultural perspectives. Topics to be explored include the social construction of women's sexuality, reproductive options, health care alternatives and risk for physical and mental illness. Attention to the historical, economic, and cultural factors that influence the physical and psychological well-being of women is an underlying theme. (F,W,Y)

**Restriction(s):**
Cannot enroll if Class is Freshman

**WGST 337 Women Musicians/West Mus Hist 3 Credit Hours**
Through a historical survey of female musicians from the Middle Ages to the present day, this course takes a critical look at theories of creativity and professionalism as they relate to female musical production. The course deals with women in European "art music" traditions and also in jazz and poplar music. Social and cultural norms dictating appropriate female involvement with music are examined. The historical approach will serve to reveal ways in which terms such as professionalism and virtuosity have continually shifted and changed in reference to female musical performance. The course challenges students to re-think many of the commonly accepted gender-based descriptions of particular genres and elements of music through listening and musical analysis.

**Prerequisite(s):** MHIS 100 or MHIS 120 or MHIS 130 or MTHY 100 or WGST 275 or PSYC 275 or HUM 275 or SOC 275 or ANTH 275 or WGST 303 or ANTH 303 or SOC 303 or PSYC 303 or HUM 303 or WST 275

**Restriction(s):**
Cannot enroll if Class is Freshman

**WGST 338 Women&Islam Mid East to 1900 3 Credit Hours**
This course covers the historical development of Islam's normative stance towards women and gender roles in the Middle East from the rise of Islam to the earliest stirrings of feminist activism.
WGST 3385  Sex, War, and Violence  3 Credit Hours
This course centers the often overlooked role of gender and sexuality in the 20th century European mobilizations of state violence such as the Holocaust, Armenian Genocide, and conflicts in the former Yugoslavia. It emphasizes the clashes that occurred between gains in gender and sexual rights during the century and projects of state violence that were frequently aimed at dismantling these gains. Attention is paid to the intersection of race, class, religion and gender in the (re)construction of new gender and sexual hierarchies in conflict and post-conflict contexts in the region.

WGST 356  Women, Politics, and the Law  3 Credit Hours
An examination of the political behavior of women in American politics. Included is an analysis of the legal and legislative demands of American women.

Restriction(s):
Can enroll if Level is Undergraduate
Can enroll if College is Arts, Sciences, and Letters

WGST 355  Women/Leadership/Social Change  3 Credit Hours
The purpose of this seminar is to examine women's leadership in movements for social change. We will approach this topic through the study of historical examples, drawn primarily from the twentieth-century United States, and including movements for economic justice, race relations, sexual identity, peace, gender equality, public health and social welfare.

Prerequisite(s):
HIST 112 or WGST 275 or WST 275 or PSYC 275 or HUM 275 or SOC 275 or ANTH 275 or ANTH 303 or HUM 303 or PSYC 303 or SOC 303 or WGST 303 or WST 303

Restriction(s):
Cannot enroll if Class is Freshman
Can enroll if Level is Undergraduate

WGST 366  Sexualities, Genders, & Bodies  3 Credit Hours
This course introduces key questions and debates in lesbian, gay, bisexual, transgender, and queer studies. Through engagement with multidisciplinary sources, students explore how sexualities, genders, and bodies are constructed and contested, how these constructions vary in diverse contexts and historical moments, and what gaps remain in our knowledge of LGBTQ lives. (YR)

WGST 370  Women in America-Hist Perspect  3 Credit Hours
A survey of American women's history from the colonial period to the present. Among the topics included are family roles, women's economic status, women's education and women in American political life.

WGST 384  Feminist Philosophy  3 Credit Hours
Feminists working in philosophy, most notably in the 19th and 20th centuries, have altered the traditional philosophical canon by first, recovering women philosophers who were essentially erased from the history and secondly, by extending and contributing to the standard questions of philosophy. For example, one central question of philosophy, "What can we know with certainty?" has been transformed through a feminist lens and reinterpreted as "What does one's gender, social location and cultural framework contribute to what one knows?" In this course we will look at the variety of feminist philosophical theories with a focus on epistemology, metaphysics and ethics.

Prerequisite(s):
PHIL 100 or WGST 275 or WGST 303 or HUM 275 or ANTH 275 or PSYC 275 or SOC 275 or WST 275 or HUM 303 or ANTH 303 or PSYC 303 or SOC 303

WGST 385  Language and Gender  3 Credit Hours
Examines theories of differences between male and female speakers of English, focusing on phonological, syntactic, semantic, stylistic and conversational features, with analyses of differences in speaking strategies and agendas of male and female speakers, as well as split-language situations in the workplace, home and social settings.

Prerequisite(s):
LING 280 or LING 281

WGST 386  Gender Issues in Literature  3 Credit Hours
A study of gender issues in English and American literature. The exact topic will vary from semester to semester, but the course may feature such topics as gay and lesbian literature, feminist criticism, images of masculinity, the representation of sexual ideologies, etc. Course may be repeated for credit when specific topics differ.

Prerequisite(s):
ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200

WGST 387  Gender, Sex, Powr Screen Studies  3 Credit Hours
This course examines representations of gender and sexuality across multiple screens, with a particular emphasis on Hollywood, independent, and non-Western cinema. In addition, the course explores intersections of gender with race, class, and ability to further investigate power structures in contemporary screen studies. The course will engage with a range of debates in film theory and women's and gender studies, and enable students to apply concepts and theories to specific media texts.

Prerequisite(s):
JASS 248 or WGST 275 or ANTH 275 or PSYC 275 or SOC 275 or WGST 303 or ANTH 303 or PSYC 303 or SOC 303 or WST 275 or HUM 240 or ENGL 240 or FILM 240 or ENGL 248 or HUM 248 or FILM 248 or JASS 240 or HUM 275 or HUM 303

WGST 388  LGBTQ Religious Experience  3 Credit Hours
This course explores intersections of religion, spirituality, and faith with sexuality and gender. Christianity and Islam receive particular attention. We also examine LGBTQ journeys within Buddhism, Hinduism, Judaism, new spiritual movements, and interfaith work. Assignments create room for students to engage faith traditions that are not covered in the course readings. The course highlights intersections at three levels of analysis: the individual or personal level (how do LGBTQ identities intersect and interact with religious freedom and practice?); the interactional or community level (how do LGBTQ people experience belonging and rejection in diverse faith communities?), and the institutional level (how do the structures of these belief systems shape the life chances of LGBTQ people in society?). (F,S,AY)

WGST 389  Topics in Women's Studies  3 Credit Hours
Examination of problems and issues in selected areas in Women's and Gender Studies. Title in Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs. (YR)

Prerequisite(s):
WGST 303 WST 275 or WGST 275

WGST 393  Black Women, Rel & Spirituality  3 Credit Hours
This lecture course surveys descriptive and critical literature relevant to the religious and spiritual experience and thought of African diasporic women. Studying religiosity and spirituality among this population helps students understand this influential, culturally-constructed world view of Black women as they engage in a variety of institutions including healthcare, economic activity, the criminal justice system, politics, and social relationships. The course gives particular attention to Black feminist and Womanist literature on these topics. (AY)

Restriction(s):
Cannot enroll if Class is Freshman
WGST 3955  Diversity and the Workplace  3 Credit Hours
This course will: 1) discuss gender, race, ethnicity, disability, age, sexual orientation, and appearance as aspects of diversity; 2) examine social values and practices, and organizational policies and procedures that affect or have affected the employment opportunities of underrepresented groups; 3) examine individual (e.g., prejudice, stereotypes), group (e.g., in-groups and out-groups), and organizational (e.g., climate and culture) processes that affect work place diversity and; 4) discuss "best practices" for promoting an organizational culture that values diversity, along with a diverse work force.
Prerequisite(s): PSYC 4305 or PSYC 431 or WST 275 or WGST 275 or OB 354 or HRM 405 or WGST 303 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303 or PSYC 275 or SOC 303 or ANTH 303 or HUM 303 or WST 275 or WST 303 or WST 275 or SOC 303 or ANTH 303 or HUM 275.

WGST 401  Images of Women in Germany  3 Credit Hours
This course will focus on the position of women in Germany after WWII and up to and after the unification of East and West Germany. Particular attention will be given to the gendered history of working through the National Socialist past, the division and reconstruction of the two nation-states, and the terrorism in West Germany in the 1970's. Students will examine images of women in films and tie them to the ideologies of gender and status of women in these larger issues of German history. Course readings will be in English. Students wishing to receive German credit for the course must enroll concurrently in GER 380: Praktikum. Students cannot receive credit for both WGST 401 and WGST 501.
Restriction(s):
Can enroll if Class is Sophomore or Junior or Senior

WGST 404  Dissed: Differ, Power, Discrim  3 Credit Hours
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power - social, economic and political in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a "natural order," obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors and ideologies that maintain discrimination and the unequal distribution of power and resources. Student will not receive credit for both WGST 404 and WGST 504.
Restriction(s):
Can enroll if Level is Undergraduate

WGST 405  Gender Roles  3 Credit Hours
This course will investigate the development of sex roles in childhood and adolescence due to either innate physiological differences or sociological patterning, the effect of sex roles upon male-female relationships within our society and the possibility of transcending societal sex roles in alternate modes of living. Students cannot receive credit for both WGST 405 and WGST 505.
Prerequisite(s): PSYC 171 or SOC 200 or SOC 201 or PSYC 170 or PSYC 101

WGST 406  Culture and Sexuality  3 Credit Hours
The study of women, men, children, socialization practices and the genesis of sex roles cross-culturally. Students cannot receive credit for both WGST 406 and WGST 406.
Prerequisite(s): ANTH 101 or WGST 275 or WST 275 or WGST 303 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or PSYC 303 or SOC 303 or ANTH 303

WGST 407  Sexual Praxis and Theory  3 Credit Hours
This course will offer an overview of sexual differences including: the socio-cultural construction of gender, sexual behavior and orientation; sex and sexualities in language and literature; and diversity by race, class and cultural heritage. These topics will enable students to understand human sexuality within and across a continuum removing notions of duality or polarity, in sexual behaviors and orientations. Examples both from within Western society and from non-Western societies may be used to further this position. Theoretical perspectives may encompass sociological and anthropological work, literary theory and criticism, queer theory, and multi-disciplinary discussions/discourse. Texts may include: Sex and the Machine; Readings in Culture; Gender and Technology; The Anatomy of Love; The Lesbian and Gay Studies Reader, Second Skins: The Body Narratives of Transsexuality, and Lesbian and Gay Marriage.
Prerequisite(s): WST 275 or WGST 275 or HUM 275 or PSYC 275 or SOC 275 or ANTH 275 or SOC 443 or PSYC 405 or ANTH 406 or ANTH 101 or WGST 303 or ANTH 303 or PSYC 303 or SOC 303 or HUM 303

WGST 408  Gender, Pwr & Intl Development  3 Credit Hours
This course provides an overview of gender issues in development in the global South, including the differential effects of development policies on women and men, and the role of social movements in transforming development policy frameworks. Students may not receive credit for both WGST 408 and 508. For graduate credit, students should elect WGST 508.
Prerequisite(s): WGST 303 or ANTH 303 or HUM 303 or PSYC 303 or SOC 303
Restriction(s):
Can enroll if Class is Junior or Senior

WGST 409  Feminist Theories  3 Credit Hours
This course examines the different perspectives that feminist theorists have offered to analyze the unequal conditions of women's and men's lives. Students taking this course will develop an understanding of how theory functions as a way to know, understand and change the world. They will also be provided with a lens for comparing the assumptions and implications of alternative theoretical perspectives. A particular emphasis of this course is on theorizing the interrelationships among gender, race, class, sexuality and nationality. Course material includes applications of feminist theory to issues such as gender identity formation; sexuality; gender, law and citizenship; women and work; and the history and politics of social movements. Students will not receive credit for both WGST 409 and and WGST 509. (AY)
Prerequisite(s): WGST 275 or WST 275 or SOC 200 or SOC 201 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

WGST 412  Men and Masculinity  3 Credit Hours
This course addresses the question, "What is a man?" in various historical, cross-cultural and contemporary contexts. A major focus is on the social and cultural factors that underlie and shape conceptions of manhood and masculinity in America as well as in a variety of societies around the globe.
Prerequisite(s): SOC 200 or SOC 201 or ANTH 101 or WST 275 or WGST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
Can enroll if Level is Undergraduate
WGST 416  Earl Mod Jpn Paint&Wood Prnts  3 Credit Hours
Painting and woodblock prints of the Edo/Tokugawa (1600-1868) and Mei II (1868-1912) periods are considered in light of competing developments that on the one hand looked to Japan's classical tradition and on the other to the influence of art and artists from China and from the West. Special attention is given to female artists and images of women. Students cannot receive credit for both WGST 416 and WGST 516.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103
Restriction(s):
Can enroll if Level is Undergraduate

WGST 420  Kinship and Marriage  3 Credit Hours
A study of the diversity of kinship and marriage systems, and of the history of kinship theory which has played a seminal role in the development of general anthropological history. Students cannot receive credit for both WGST 420 and WGST 520.
Prerequisite(s): ANTH 101
Restriction(s):
Can enroll if Level is Undergraduate

WGST 425  Women in Classical Antiquity  3 Credit Hours
This course examines the evidence for the lives of women in Greek, Etruscan and Roman Antiquity, from the Bronze Age through the Imperial Period. Special emphasis will be placed on the archaeological evidence, especially works of art which illustrate women's lives and their relationships with men. Documents such as dedicatory and funerary inscriptions, the poetry of Sappho and Sulpicia, and selections from the writings of Homer, Hesiod, Aristotle, Pliny, Juvenal, and other ancient authors, will also be examined critically, particularly in relationship to the works of art.
Prerequisite(s): ARTH 101
Restriction(s):
Can enroll if Level is Undergraduate

WGST 433  Writing Women In Renaissance  3 Credit Hours
This course will be taught in English, and will focus on the influence of Italian literary models for the construction of female literary types as well as female voices in France and Italy from 1300 to about 1600. Italian authors studied include three very influential Florentines, Dante, Petrarch and Boccaccio, as well as Castiglione and Asioesto. We will read women poets, patrons, prostitutes and queens from Italy and France such as Veronica Gambara, Isabella di Morra, Vittoria Colonna, Christine de Pizan, Louise Labe and Marguerite de Navarre. At issue will be women's roles and women's images in city and court culture during the early modern period and the interaction of their writings with the literary canons of Italy and France.
Restriction(s):
Cannot enroll if Class is Graduate

WGST 436  Reproductive Health Policy  3 Credit Hours
This course provides a comprehensive introduction to the field of reproductive health in the US. Understanding women's reproductive health requires consideration of the intersections of gender, race, class, culture, geography, economic status, and nation within a sociopolitical context. The course introduces students to the historical trends in the regulation of women's fertility and reproductive health. Readings draw from a number of different disciplines, including: law, medical studies, history, social sciences, and personal narratives to critically examine the intent and impact of current standards for reproductive health policy and practice. Topics include: reproductive justice, contraception, pregnancy, reproductive control, and family leave. Course discussions include a focus on health policy and activism to affect change related to women's reproductive health, all within a framework of reproductive justice. A major emphasis is on developing critical thinking skills that can be applied to issues of women's reproductive health in order to educate and empower students to become proactive healthcare consumers.
Prerequisite(s):
SOC 201 or ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 303

WGST 444  20C/21C Women Authors  3 Credit Hours
An analysis of images and problems of women as defined by significant British and American women writers of the 20th and 21st centuries. Style and narrative technique will also be closely examined. Students cannot receive credit for both WGST 445 and WGST 545.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240)
Restriction(s):
Can enroll if Level is Undergraduate

WGST 446  Marriage and Family Problems  3 Credit Hours
Sociological analysis of problems encountered within the institution of marriage with particular reference to such issues as choosing a marriage partner, sexual adjustment, occupational involvement, conflict resolution, child rearing, divorce and readjustment. Students cannot receive credit for both WGST 446 and WGST 546.
Prerequisite(s): SOC 200 or SOC 201 or WGST 275 or WST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

WGST 447  Family Violence  3 Credit Hours
Sociological analyses of various forms of family violence which occur disproportionately in the lives of girls and women. Topics such as incest, sexual abuse, date rape, wife battering and elder abuse will be situated within the social and cultural context of contemporary gender relationships. Social and political responses to the phenomena will be examined. Students cannot receive credit for both WGST 447 and WGST 547.
Prerequisite(s): SOC 200 or SOC 201 or SOC 301 or SOC 443 or PSYC 405 or WST 405
Restriction(s):
Can enroll if Level is Undergraduate

WGST 4505  Feminism & Mod. Mid. East  3 Credit Hours
This course provides an analysis of the history, historiography, and sources for the study of feminism in the Middle East since 1800.
Prerequisite(s): COMP 106 or HIST 101 or HIST 113 or WGST 303
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore
**WGST 451 **Family, Sexuality, Rights 3 Credit Hours

This course investigates the changing possibilities for forming families and expressing sexuality, with a focus on how nation states and legal and cultural systems construct and respond to these changes. Selected topics include the meanings of sex, love, marriage, and relatedness in different historical moments; struggles for recognition of varied kinship and family arrangements, such as interracial, interfaith, same-sex, polygamous and multi-partner relationships; and new technologies and their implications for family life. (YR)

**Prerequisite(s):** (WGST 303 or SOC 303 or ANTH 303 or PSYC 303 or HUM 303) or (SOC 200 or SOC 201) or (ANTH 101 or ANTH 202)

**Restriction(s):**
- Can enroll if Class is Sophomore or Junior or Senior

**WGST 455 **Gender and Media Studies 3 Credit Hours

The course will focus on several feminist approaches used in understanding the media and attempting to create social change through the media. The role of media in the definition and reproduction of gender-based hierarchies and in the renegotiation of gender boundaries will both be explored. To this end, both mainstream and women's media will be examined. The course will take a multicultural and international perspective, incorporating concerns of class, race, ethnicity and nation as these intersect with the study of gender and media. Mainstream and alternative media will be analyzed through readings, films, case studies, in-class collaborative exercises and longer-term projects. News, entertainment and advertising genres will be examined in a variety of media, such as the printed press, television, video, film and the Internet.

**Prerequisite(s):** WGST 303 or HUM 303 or ANTH 303 or PSYC 303 or SOC 303 or WGST 275 or HUM 275 or ANTH 275 or PSYC 275 or SOC 275 or WST 275

**Restriction(s):**
- Can enroll if Class is Sophomore or Junior or Senior

**WGST 4555 **Immigrant Cultures and Gender 3 Credit Hours

The history and culture of immigration since 1850, including: (1) formation and perseverance of immigrant communities and interethic boundaries; (2) relations between the homeland and the immigrant; and (3) impact of migration on family life and gender roles. Prerequisite and junior or senior standing. Students may not receive credit for both WGST 4555 and WGST 5555. For graduate credit take WGST 5555.

**Prerequisite(s):** ANTH 101 or WGST 275 or WST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 330 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

**WGST 461 **Cops & Cons: Women in Prison 3 Credit Hours

This course will focus on several feminist approaches used in understanding the media and attempting to create social change through the media. The role of media in the definition and reproduction of gender-based hierarchies and in the renegotiation of gender boundaries will both be explored. To this end, both mainstream and women's media will be examined. The course will take a multicultural and international perspective, incorporating concerns of class, race, ethnicity and nation as these intersect with the study of gender and media. Mainstream and alternative media will be analyzed through readings, films, case studies, in-class collaborative exercises and longer-term projects. News, entertainment and advertising genres will be examined in a variety of media, such as the printed press, television, video, film and the Internet.

**Prerequisite(s):** WGST 303 or HUM 303 or ANTH 303 or PSYC 303 or SOC 303 or WGST 275 or HUM 275 or ANTH 275 or PSYC 275 or SOC 275 or WST 275

**Restriction(s):**
- Can enroll if Class is Sophomore or Junior or Senior

**WGST 4650 **Sem in US Women's History 3 Credit Hours

Seminar on the historiography and key primary sources related to U.S. Women's History. The course covers examples of classic texts in the field as well as significant new works of scholarship, with an emphasis on critical reading, analysis, and historiography of the field. Students gain a deeper understanding of the field, its guiding concepts, foundational texts, newest trajectories, and impact on the field of history as a whole. The graduate version of this course includes weightier readings and assignments.

**Prerequisite(s):** HIST 300

**Restriction(s):**
- Cannot enroll if Class is Freshman or Sophomore

**WGST 466 **Arguing Feminism: Rhetoric 3 Credit Hours

An introduction to the work of major twentieth century feminists working in rhetoric and related fields. Students examine recurring themes of language, meaning, ethics and ideology, and practice writing strategies which address rhetorical and ethical concerns central to feminist/academic writing.

**Prerequisite(s):** COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40

**Restriction(s):**
- Cannot enroll if Class is Freshman

**WGST 470 **Black Women / Lit, Film, Music 3 Credit Hours

This course will examine works produced by Black women authors, activists, filmmakers and musical performers in order to determine the methods they have incorporated in order to challenge and eradicate the prevailing stereotypes about Black women while advancing their own personal and racial agendas. It will also focus on the extent to which race, gender and class have shaped the creative work of Black women. Students will be required to read, analyze and write their own responses to the works of such firebrands as author Zora Neale Hurston, activist Ida B. Wells, filmmaker Julie Dash and singer Billie Holiday.

**Prerequisite(s):** ENGL 200 FILM 240 or FILM 248 or FILM 385 or AAAS 239 or AAAS 275 or HUM 303 or HUM 221 or HUM 222 or HUM 223 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 237 or ENGL 239 or ENGL 248 or ANTH 303 or PSYC 303 or SOC 303 or WGST 303

**Restriction(s):**
- Can enroll if Program is AB-Women’s and Gender Studies

**WGST 471 **Sexual Subcultures in Lit 3 Credit Hours

This course surveys primarily contemporary literature by writers who identify as gay, lesbian, bi-sexual, transgender, or queer. By studying the self-representation and culturally unique perspective of this emerging canon of writers, students in this course understand the emergence of LGBTQ literary traditions and understand the cultural diversity within these traditions. Students learn to identify the aesthetic qualities (such as camp, performativity, coded subtexts, homoeroticism, and the relationship between creativity and sexuality), and historical, political, and social concerns that characterize LGBTQ literary and cultural production. Topics covered include the struggle for civil rights before and after Stonewall, coming out narratives, the negotiation of homophobic cultures, post-colonial writers, and memoirs of the LGBTQ experience, as well as the historical emergence of sexual categories and the literary critique of heteronormativity. This course counts toward the English discipline diversity requirement. Students cannot receive credit for WGST 471 and WGST/ENGL 571.

**Prerequisite(s):** (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239) and (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40)
**WGST 473 Arab American Women Writers 3 Credit Hours**
This course examines the literary and cultural contributions of Arab and Arab American women novelists, poets, filmmakers and artists to the development and consolidation of cultures of understanding and coexistence; explores the relations between, among others, citizenship and belonging, race and national security, gender and geographical mobility, and ethnic minorities and mainstream consciousness; stresses how literary and artistic productions of Arab and Arab American women writers and artists fosters alternative visions of socio-cultural coexistence, dialogue, and hospitality by means of technical and stylistic experimental and renovation.

**Restriction(s):**
Cannot enroll if Class is Freshman

**WGST 475 Diversity Issues in Mental Health 3 Credit Hours**
Diversity Issues in Mental Health explores varied cultural descriptions and models of mental illness. By focusing on the ways that culture shapes how people experience, and respond to, mental illness this class explores cultural representations of mental illness, ranging from discrete illness resulting from a chemical imbalance to a profound threat to order. We seek to understand the cultural, personal, and political underpinnings of mental illness and medical practices in societies throughout the world. The course utilizes an interdisciplinary perspective, drawing from multiple sources of information regarding mental health issues, including feminism, psychiatry, history, sociology, and literature. Issues raised throughout the course include the ways gender, race, culture, religion, and stigma influence the diagnosis of mental illness, patterns of help-seeking behavior, formation of comprehensive mental health policy, and treatment options.

**Prerequisite(s):** WGST 303 or ANTH 303 or HUM 303 or SOC 303 or PSYC 303 or WGST 336 or HPS 336

**WGST 476 Inside Out Prison Exchange 4 Credit Hours**
This community-based course, taught in a local correctional facility, brings university students and incarcerated students together to study as peers. Together students explore issues of crime and justice, drawing on one another to create a deeper understanding of how these issues affect our lives as individuals and as a society. The course creates a dynamic partnership between UMD and a correctional facility to allow students to question approaches to issues of crime and justice in order to build a safer and more just society for all. The course encourages outside (UMD) students to contextualize and to think deeply about what they have learned about crime and criminals and to help them pursue the work of creating a restorative criminal justice system; it challenges inside students to place their life experiences into larger social contexts and to rekindle their intellectual self-confidence and interest in further education.

**Restriction(s):**
Cannot enroll if Class is Freshman

**Can enroll if Level is Undergraduate**

**WGST 478 Gender and Globalization 3 Credit Hours**
Mass media, politics and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women's lives, gender relations and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism and environmental challenges. Rather than survey international women's movements, this course explores how globalization reformulates identities and locations and the political possibilities they create.

**Prerequisite(s):** ANTH 303 HUM 303 or PSYC 303 or SOC 303 or WGST 303

**Restriction(s):**
Can enroll if Level is Undergraduate

**WGST 481 Gender and Globalization 3 Credit Hours**
Mass media, politics and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women's lives, gender relations and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism and environmental challenges. Rather than survey international women's movements, this course explores how globalization reformulates identities and locations and the political possibilities they create.

**Prerequisite(s):** ANTH 303 HUM 303 or PSYC 303 or SOC 303 or WGST 303

**Restriction(s):**
Can enroll if Level is Undergraduate

**WGST 484 Violence Against Women 3 Credit Hours**
Course examines local and global social violence against women outside family and other intimate relationships. Students consider violations against women's human rights throughout the life cycle, which are often sanctioned under the guise of cultural practices and misinterpretations of religious tenets. Topics include sex-selective abortion and female infanticide (the "missing millions"); female genital mutilation and cosmetic surgeries; prostitution and pornography; trafficking in women; sexual harassment; and women's experiences of war as soldiers, non-combatants and refugees. Topics are "paired", that is, students compare understandings of Western and non-Western social practices related to gender. Students examine both institutionalized sexism and racism, as part of political, economic, and social systems, and sexism and racism as realities affecting individual women's lives.

**Prerequisite(s):** SOC 200 or SOC 201 or WGST 303 or HUM 303 or PSYC 303 or ANTH 303 or SOC 303 or WGST 275 or HUM 275 or PSYC 275 or SOC 275 or ANTH 275 or WST 275

**Restriction(s):**
Cannot enroll if Class is Freshman

**Can enroll if Level is Undergraduate**

**WGST 486 Queer Theory & Literature 3 Credit Hours**
This course reads theories of sexuality to analyze how writers since 1600 have imagined printed text to reflect and shape desire, particularly same-sex desire. The course questions how same-sex desire appears in literature written before the theorization of "the Homosexual" in the late nineteenth century as well as how writers imagine sexuality before the hetero/homosexual binary appears. Writers may include contemporary theorists (Sedgwick, Foucault, Butler) as well as novelists (Gaskell and Stoker), playwrights (Kushner and Wycherley), and poets.

**Prerequisite(s):** (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 234 or ENGL 236 or ENGL 237 or ENGL 239 or AAAS 239)
WGST 487  Monsters, Women & the Gothic  3 Credit Hours
This course questions our inheritance of the gothic as a district literary style that continues to discipline readers' notions of gender and sexual identity. The course argues that by tracing the gothic's literary history, we may simultaneously witness a history of gender formation. Readings may include English novelists who originated a gothic style in English (Walpole, Radcliffe, Lewis) as well as English and American poets and novelists who have debated as well as resisted the effects of the gothic on readers' (particularly women's) psychology (Christina Rossetti, Austen, King, Stoker).
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

WGST 490  Topics in Women's Studies  3 Credit Hours
Examination of problems and issues related to Women's Studies. Title as listed in Schedule of Classes will change according to specific content. Course may be repeated for credit when specific topics differ.
Prerequisite(s): WST 275 or WGST 275 or LIBS 580 or WGST 303
Restriction(s):
Can enroll if Level is Undergraduate

WGST 498  Womens&Gender St Thesis  1 to 6 Credit Hours
A thesis project that is the culmination of the minor in Women's Studies. Students meet with the instructor to reflect on past studies and plan current projects, to conduct research that addresses a gender issue in the larger community, and to write a thesis under the direction of the faculty member. Research involving participant-observer in social agencies is encouraged where appropriate.
Restriction(s):
Can enroll if Level is Undergraduate

WGST 499  Independent Studies  1 to 6 Credit Hours
Provides opportunity for qualified Women's Studies students to pursue independent research under the direction of a qualified faculty member. Project must be defined in advance, in writing and must be in a subject not currently offered in the regular curriculum.
Restriction(s):
Can enroll if Level is Undergraduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
GRADUATE

Graduate Catalog 2017-2018
Daniel E. Little, PhD
Chancellor
University of Michigan-Dearborn

University of Michigan-Dearborn
Dearborn, Michigan 48128-2406
Telephone: 313-593-5000

The University of Michigan, as an Equal Opportunity/Affirmative Action employer, complies with applicable federal and state laws regarding nondiscrimination and affirmative action, including Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973. The University of Michigan is committed to a policy of nondiscrimination and equal opportunity for all persons regardless of race, sex, color, religion, creed, national origin or ancestry, age, marital status, sexual orientation, gender identity, gender expression, disability, or veteran status in employment, educational programs and activities, and admissions. Inquiries or complaints may be directed to the:

Senior Director for Institutional Equity and Title IX/Section 504 Coordinator, Office of Institutional Equity, 2072 Administrative Services Building, Arbor, Michigan 48109-1432, 734-763-0235; TTY 734-647-1388.

University of Michigan-Dearborn inquiries may be addressed to the:

Dearborn Institutional Equity Officer, Office of Institutional Equity, 1020 Administration Building, Dearborn, Michigan 48128-2406, 313-593-5320 or 593-5190, TTY 313-593-5430, fax 313-593-3568.

The UM-Dearborn Catalog is a fundamental source of information concerning academic opportunities, policies, regulations, and procedures. It is each student’s responsibility to become familiar with the information contained herein.

All data in this catalog reflect information as it was available at the publication date. The University of Michigan-Dearborn reserves the right to revise any content contained in this publication at its discretion and to make reasonable changes in requirements as approved by official action of the University of Michigan-Dearborn University Curriculum and Degree Committee. Except in the case of error or unless otherwise noted, approved changes made to program and degree requirements become effective the appropriate fall semester and apply to all students admitted to the University for that academic year.

Requirements for degree are based on the regulations and requirements in effect at the time students initially registered at University of Michigan-Dearborn as a degree-seeking student. Students must satisfy degree requirements in effect at the time of their admission to the University of Michigan-Dearborn. Students who select a major and/or minor offered in a catalog subsequent to their original admission at the University of Michigan-Dearborn must follow the catalog in effect at the time of the selection.*

Students who do not attend for one calendar year, must be readmitted to the University through their Academic Unit and must satisfy degree and program requirements in effect at the time of their readmission.

Information in this Graduate Catalog is as of June 2017. Every care has been taken to insure its accuracy; however, the University cannot be responsible for errors and reserves the right to change programs, requirements and policies at any time after the publication of this Catalog. Current information is available through Unit and Departmental Offices.

How to use the Graduate Catalog

The Catalog of the University of Michigan-Dearborn is a fundamental source of information concerning academic opportunities, policies, regulations, and procedures. It is each student’s responsibility to become familiar with the information contained herein.

The catalog is divided into nine sections:

• General Information (p. 472)
• Graduate Admissions (http://catalog.umd.umich.edu/graduate/graduate-admissions)
• Financial Aid & Scholarships (http://catalog.umd.umich.edu/graduate/financial-aid-scholarships)
• Registration & Records (http://catalog.umd.umich.edu/graduate/registration-records)
• Academic Policies (http://catalog.umd.umich.edu/graduate/academic-policies)
• College of Arts, Sciences, and Letters (p. 472)
• College of Business (p. 485)
• College of Engineering and Computer Science (p. 515)
• College of Education, Health, and Human Services (p. 539)

The College of Arts, Sciences, and Letters, College of Business, College of Engineering and Computer Science, and College of Education, Health, and Human Services sections contain: specific regulations and procedures which may be unique to that academic unit; information regarding programs, degrees and courses offered; and a plan for electing courses to fulfill undergraduate degree requirements.

Key to Course Listings

The heading for each course listing contains the following information.

Discipline and Course Number

Courses are numbered in accordance with a University-wide numbering system:

Courses numbered 100 to 199 are introductory and 1000 to 1999 are introductory to a field or discipline. The courses exert a demand for only such depth of study commensurate with initial work at the college level.

Courses numbered 200 to 299 and 2000 to 2999 are considered intermediate and require student independence in the acquisition of material and mastery of techniques and methods above the introductory-level courses.
Courses numbered 300 to 499 or 3000 to 4999 are considered advanced and are usually confined to the program/major and require a working knowledge of facts, theory, and methods appropriate to the discipline.

Courses numbered 500 to 999 or 5000 to 9999 are intended for a graduate-level program study.

**Course Title**
The bold face course title follows the course number.

**Credit Hours**
Credit hours at the University of Michigan-Dearborn are based on semester hours. The number of credit hours for each course is listed below the title.

**Prerequisite**
Prerequisites to the course normally appear below the title and credit hours, although they may sometimes be included in the course description. They should be completed before the course is elected.

**Concurrent Courses**
Courses listed in the prerequisite section with an asterisk (*) indicate those that may be taken concurrently with the course listed.

**Frequency of Offering**
The following abbreviations are used to denote the frequency of offering:

- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

**General Information**

The University Of Michigan-Dearborn

The University of Michigan-Dearborn (UM-Dearborn) is one of the three campuses of the University of Michigan operating under the policies of the Board of Regents.

The campus, located on the former estate of automotive pioneer Henry Ford, was founded in 1959 as a senior-level institution offering junior, senior, and graduate-level courses and degrees. In 1971, UM-Dearborn became a comprehensive university campus offering four-year degree programs in liberal arts and sciences and graduate programs at the master's degree level.

More than 9,100 students representing a wide range of academic interests and diverse backgrounds are currently enrolled at UM-Dearborn.

As part of the University of Michigan, UM-Dearborn enjoys the association with a large multi-university and the advantages of moderate size. Through expanded evening course offerings, professional development programs and cooperative education programs, UM-Dearborn continues to respond to the educational needs of commuting students from the Detroit metropolitan community.

College of Arts, Sciences, and Letters

**College of Arts, Sciences, and Letters History of the College**

From the beginning of the Dearborn Center of the University of Michigan, as it was called at first, there was "an intent to provide a full schedule of daytime courses in Engineering, Business Administration, and the Liberal Arts and Sciences" (Report by the University’s Dean of Statewide Education, January 1957). On January 10, 1958, the Regents approved the creation of the Division of Literature, Science, and the Arts (LSA) as an official academic division. Full programs in the liberal arts began in Fall 1960; by Fall 1965 the LSA Division was the largest academic unit on the Dearborn Campus, a distinction which continues to the present.

When it became a four-year undergraduate institution in 1971, the Campus was designated the University of Michigan-Dearborn (UM-Dearborn). Two years later, the Regents approved a new set of UM-Dearborn Bylaws, in which the Department of Education became a separate division, and the LSA Division became the College of Arts, Sciences, and Letters (CASL), administered by a Dean. CASL now consists of six multidisciplinary departments: Behavioral Sciences; Language, Culture, and Communication; Literature, Philosophy, and the Arts; Mathematics and Statistics; Natural Sciences and Social Sciences.

**College of Arts, Sciences, and Letters Mission Statement**

The College of Arts, Sciences, and Letters inspires and equips its students, through education in the liberal arts, to be servant leaders in society at large and for the resurgence and renewal in southeast Michigan. The College fulfills its mission by providing rigorous and intellectually challenging educational experiences rich in critical thinking, collaborative and reflective learning, civic engagement, and personal interaction with high quality and dedicated faculty. The College of Arts, Sciences, and Letters promotes the value of life-long intellectual growth and development, rational and respectful discourse, living and leading in multicultural societies, striving for justice and fairness, and in gaining a global perspective.

**College of Arts, Sciences, and Letters Graduate Programs**

Graduate programs in the College of Arts, Sciences, and Letters engage a diverse, highly motivated, and talented student body in disciplined and sustained study for both intellectual and vocational purposes. In particular, these programs are designed to equip students with the intellectual resilience required for the complex challenges of a changing world—and for the intersecting domains of professional activity, citizenship and public policy, and life-long learning.

Building on the talents of a distinguished faculty of teacher-scholars and the resources of the region, these programs fulfill two broad liberal arts functions. They enlarge, deepen, and refine students’ knowledge and awareness. They also develop students’ analytical, critical thinking, and problem-solving skills. Most emphasize interdisciplinary perspectives and methods, a hallmark of the College, in the conviction that multiple perspectives yield richer analytical contexts. Most offer small classes, close interaction with faculty, and special sensitivity to issues that have regional significance. Whether specifically oriented to a particular profession or not, these programs try to accommodate the interests and needs of working adults through convenient scheduling, customized plans of study, and thoughtful advising. Partnerships with the broader community provide opportunities for the dissemination and application of knowledge, and for collaborative projects. For example, our students might develop problem-solving applications for industrial and scientific settings like those in southeastern Michigan, use the Rouge River watershed as a laboratory for environmental concerns, or work with nearby healthcare providers.
CASL offers five graduate degrees: Master of Science in Applied and Computational Mathematics, Master of Science in Criminology and Criminal Justice, Master of Science in Environmental Science, Master of Science in Psychology with Specializations in Health Psychology and Clinical Health Psychology, Master of Public Administration.

Following are descriptions of each program’s mission, admission standards, and requirements. For additional information see the Graduate Programs (https://umdearborn.edu/casl/graduate-programs) page.

Master's Programs

- Master of Criminology and Criminal Justice (http://catalog.umd.umich.edu/graduate/college-arts-sciences-letters/criminology-criminal-justice)
- Master of Science in Applied and Computational Mathematics (p. 478)
- Master of Science in Environmental Science (p. 479)
- Masters of Arts in Liberal Studies (p. 481)
- Master of Science in Psychology (p. 481)
- Master of Public Administration (p. 484)
- Master of Public Policy (p. 485)

Administration

Martin J. Hershock, PhD, Dean
Michael Lachance, PhD, Associate Dean
Gabriella M. Scarlatta, PhD, Associate Dean
Nada Bachir, BA, Administrative Specialist Intermediate
Sharie Beard, CWP, Administrative Project Coordinator
Susan Gedert, AB, Communications Editor Alumni Affiliate Coordinator
Rita Gordon, MBA, Director of Administrative Services
Mary Jones, Research Coordinator
Ellen Judge-Gonzalez, MA, Director, Student Outreach and Academic Resources (SOAR Program)
Sheilah Larnhart, BA, CWP, Administrative Assistant
Patricia Martin, MPA, Cooperative Program Manager
Lisa Morrow, MBA, Financial Analyst
Rebecca Richardson, SOAR

Chairs and Directors

David Chatkoff, Director, Psychology
Natalia Czap, Director, Public Policy and Public Administration
Scott DeGregorio, Director, Honors Program
Ivy Forsythe-Brown, Director, African American and African Studies and Center for Ethnic and Religious Studies
Jorge Gonzalez del Pozo, Chair, Language, Culture, and Communication
Angela Krebs, Director, Center for Mathematics and Education
Lisa Martin, Director, Women's and Gender Studies
Joan Remski, Director, Applied and Computational Mathematics
Lara Rusch, Director, Urban and Regional Studies Program
Ara Sanjian, Director, Center for Armenian Studies
Donald Shelton, Director, Criminology and Criminal Justice
Jonathan Smith, Chair, Behavioral Studies
Deborah Smith-Pollard, Chair, Literature, Philosophy and the Arts
David Susko, Director, Environmental Interpretative Center
John Thomas, Chair, Natural Science
Dale Thomson, Chair, Natural Science
Jamie Waight, Program Advisor, Liberal Studies
Jennifer Zhao, Chair, Mathematics and Statistics

Professors Emeriti

Akiyama, Michael, PhD, Professor Emeritus of Psychology
Anderson, Donald F., PhD, Professor Emeritus of Political Science
Axsom, Richard, PhD, Professor Emeritus of Art History
Berkove, Lawrence, PhD, Professor Emeritus of English Language and Literature
Bjorn, Lars, PhD, Professor Emeritus of Sociology
Bogin, Barry A., PhD, Professor Emeritus of Anthropology
Bord, Donald, PhD, Professor Emeritus of Physics
Brown, James W., PhD, Professor Emeritus of Mathematics
Clark, Elaine G., PhD, Professor Emerita of History
Constant, John G., PhD, Associate Professor Emeritus of Music
Crowell, Elizabeth, PhD, Associate Professor Emerita of Economics
Dahlke, Richard M., PhD, Professor Emeritus of Mathematics and Mathematics Education
DeCamp, Mark, PhD, Associate Professor Emeritus of Chemistry
Emery, Allan, PhD, Professor Emeritus of Chemistry
Fakler, Robert, PhD, Professor Emeritus of Mathematics
Fink, John F., PhD, Professor Emeritus of Mathematics
Flax, Neil M., PhD, Associate Professor Emeritus of Comparative Literature and German
Gardner, Gerald, PhD, Professor Emeritus of Psychology
Garland, Frank, PhD, Associate Professor Emeritus of Chemistry
Gillespie, John, PhD, Professor Emeritus of Mathematics and Statistics
Grewe, Eugene, PhD, Professor Emeritus of Rhetoric and English Composition
Gruber, James, PhD, Professor Emeritus of Sociology
Heady, Judith, PhD, Associate Professor Emerita of Biology
Higgs, Elton, PhD, Professor Emeritus of English Language and Literature
House, Gloria, PhD, Professor Emerita of African and African American Studies and Humanities
Höft, Margret, PhD, Professor Emerita of Mathematics
James, David A., PhD, Professor Emeritus of Mathematics
Kamachi, Noriko, PhD, Professor Emeritus of History
Klein, Bernard W., PhD, Professor Emeritus of Political Science
Kotre, John, PhD, Professor Emeritus of Psychology
Lee, Dorothy A., PhD, Professor Emerita of Comparative Literature and English
Lempert, Lora Bex, PhD, Professor Emerita of Sociology
Lyjak, Robert, PhD, Professor Emeritus of Mathematics and Computer Science
Milles, Stephen, PhD, Associate Professor Emeritus of Mathematics and Mathematics Education
Moerman, Daniel, PhD, Professor Emeritus of Anthropology
Morash, Ronald P., PhD, Professor Emeritus of Mathematics
Mostafapour, Kazem, PhD, Associate Professor Emeritus of Biochemistry and Chemistry
Nadasen, Arunajallam, PhD, Professor Emeritus of Physics
Norman, Richard, PhD, Associate Professor Emeritus of Biology
Otto, Charlotte, PhD, Professor Emerita of Chemistry
Papazian, Dennis, PhD, Professor Emeritus of History
Papp, F.J., PhD, Professor Emeritus of Mathematics
Pearson, Sheryl S., PhD, Professor Emerita of English Literature
Pebworth, Ted-Larry, PhD, Professor Emeritus of English Language and Literature
Perlove, Shelley K., PhD, Professor Emerita of Art History
Peter, Philip H., PhD, Associate Professor Emeritus of Music
Proctor, Donald, PhD, Professor Emeritus of History
Radine, Lawrence, PhD, Professor Emeritus of Sociology
Roehl, Richard, PhD, Professor Emeritus of Economics
Rubenstein, Rheta N., PhD, Professor Emerita of Mathematics
Sayles, Edward, PhD, Professor Emeritus of Philosophy
Schaum, Melita, PhD, Professor Emerita of English Literature
Schneider, Michael J., PhD, Professor Emeritus of Biology
Simpson, Robert, PhD, Professor Emeritus of Biology and Environmental Science
Snabb, Thomas, PhD, Associate Professor Emeritus of Mathematics
Spinelli, Emily L., PhD, Professor Emerita of Spanish
Stern, Jeffrey, PhD, Professor Emeritus of Psychology
Summers, Claude, PhD, Professor Emeritus of English Language and Literature
Tai, Julia C., PhD, Professor Emerita of Chemistry
Tentler, Leslie W., PhD, Professor Emerita of History
Thomson, William, PhD, Associate Professor Emeritus of Psychology
Towmey, Michael, PhD, Professor Emeritus of Economics
Verhey, Roger, PhD, Professor Emeritus of Mathematics
Wider, Kathleen, PhD, Professor Emerita of Philosophy
Woodward, Wayne, PhD, Associate Professor Emeritus of Communication

Faculty
Department of Behavioral Science
Aronson, Pamela, PhD, University of Minnesota, Professor of Sociology
Banner, Francine, JD, PhD, Arizona State University, Associate Professor of Sociology
Barak, Maya P., PhD, American University, Assistant Professor of Criminal Justice
Beauchesne, Patrick, PhD, University of California Berkeley, Assistant Professor of Anthropology
Brainer, Amy, PhD, University of Illinois, Assistant Professor of Sociology, Women's and Gender Studies
Chatkoff, David, PhD, University of Southern Mississippi, Associate Professor of Psychology
Chenoweth, John, PhD, University of California Berkeley, Assistant Professor of Anthropology
Clark-Foos, Arlo, PhD, University of Georgia, Associate Professor of Psychology
Dolins, Francine, PhD, University of Stirling (Scotland), Associate Professor of Psychology
Draus, Paul, PhD, Loyola University, Professor of Sociology
Early, Kevin, PhD, University of Florida, Associate Professor of Sociology, Criminal Justice Studies
Forsythe-Brown, Ivy, PhD, University of Maryland, Associate Professor of Sociology, African and African American Studies
Hymes, Robert W, PhD, Michigan State University, Associate Professor of Psychology
Lacey, Krim, PhD, Wayne State University, Assistant Professor of Sociology, African and African American Studies
Leonard, Michelle, PhD, Wayne State University, Associate Professor of Psychology
Loeb, Roger C., PhD, Cornell University, Professor of Psychology
Martin, Lisa, PhD, University of Michigan, Associate Professor of Health Policy Studies and Women's and Gender Studies
McAuslan, Pamela, PhD, Wayne State University, Associate Professor of Psychology
McKenna, Brian, PhD, Michigan State University, Associate Professor of Anthropology
Patel, Nehal, JD, PhD, Northwestern University, Associate Professor of Criminal Justice and Sociology
Pecina, Susana, PhD, University of Michigan, Professor of Psychology
Price, Carmel, PhD, University of Tennessee, Associate Professor of Sociology
Sethuraman, Nitya, PhD, University of California at San Diego, Associate Professor of Psychology
Sheldon, Jane, PhD, University of Michigan, Professor of Psychology
Shelton, Donald, JD, PhD, University of Nevada, Associate Professor of Criminal Justice
Siefert, Caleb, PhD, Adelphi University, Professor of Psychology
Strychalski, Daniel, PhD, Columbia University, Professor of Psychology
Swift, Dan J., PhD, University of New Hampshire, Associate Professor of Psychology
Waung, Marie, PhD, Ohio State University, Professor of Psychology
Wellman, Rose, PhD, University of Virginia, Assistant Professor of Anthropology
Whitehead, Brenda, PhD, University of Notre Dame, Assistant Professor of Psychology
Wrobel, Nancy, PhD, Wayne State University, Professor of Psychology

Department of Language, Culture and Communication
Calzada-Orihuela, Sofia, PhD, University of Maryland, Lecturer of Spanish
Davis, Daniel, D.Phil., Oxford University, Professor of Linguistics
DeGenaro, William, PhD, University of Arizona, Professor of Composition and Rhetoric
Dika, Rita, PhD, Wayne State University, Lecturer of Arabic
Gilmore, H James, MA, University of Iowa, Clinical Professor of Journalism and Screen Studies

González del Pozo, Jorge, PhD, University of Kentucky, Professor of Spanish
Iannarino, Nicholas, PhD, University of Kentucky, Assistant Professor of Communication
Kawtherani, Farah, PhD, McGill University, Assistant Professor of Arabic
Kiska, Timothy, PhD, Wayne State University, Associate Professor of Journalism and Screen Studies
Kraus, Carolyn, PhD, University of Michigan, Professor of Journalism and Screen Studies
Lee, Jamie, PhD, University of Illinois, Associate Professor of Linguistics
Luthra, Rashmi, PhD, University of Wisconsin-Madison, Professor of Communication
MacDonald, Michael Tyler, PhD, University of Wisconsin-Milwaukee, Assistant Professor of Composition and Rhetoric
Mannion, Jerilyn, MA, Bowling Green State University, Lecturer of French
Martinez-Valencia, Francia Eliana, PhD, University of Alabama, Associate Professor of Spanish
Murphy, Troy, PhD, University of Pittsburgh, Associate Professor of Communication
Murray, Margaret, PhD, University of Colorado-Boulder, Assistant Professor of Communication
Potvin, Phillip, MFA, Bennington College, Lecturer of Composition and Rhetoric
Proctor, Jennifer, MFA, University of Iowa, Assistant Professor of Journalism and Screen Studies
Pérez, Marissa, MA, University of Michigan, Lecturer of Spanish
Rodríguez-McGill, Carlos, PhD, Ohio State University, Associate Professor of Spanish
Rohon, Elizabeth, PhD, University of Illinois Urbana-Champaign, Professor of Composition and Rhetoric
Scarlati, Gabriella M., PhD, Wayne State University, Professor of French
Spoden, Stéphane, PhD, Ohio State University, Professor of French
Vansant, Jacqueline, PhD, University of Texas-Austin, Professor of German
Willard-Traub, Margaret, PhD, University of Michigan, Associate Professor of Composition and Rhetoric

Department of Literature, Philosophy and the Arts
Aijaz, Imran, PhD, University of Auckland (New Zealand), Associate Professor of Philosophy
Basevich, Elvira, PhD, CUNY, Assistant Professor of Philosophy
Baumgarten, Elias, PhD, Northwestern University, Associate Professor of Philosophy
Bond, Erik, PhD, New York University, Associate Professor of English Literature
Erickson, Susan N., PhD, University of Minnesota, Professor of Art History
Finlayson, J. Caitlin, PhD, University of Toronto, Associate Professor of English Literature
Hughes, Paul, PhD, University of Illinois-Chicago, Professor of Philosophy
Jarenski, Michelle, PhD, Loyola University Chicago, Associate Professor of English Literature
Lambert, Julie, MFA, Cranbrook Academy of Art, Lecturer of Art History and Applied Art
Linker, Maureen, PhD, City University of New York, Professor of Philosophy
Little, Daniel E., PhD, Harvard University, Professor of Philosophy
McMillan, Calvin, PhD, University of California, Lecturer of English Literature
Ng, Diana, PhD, University of Michigan, Associate Professor of Art History
Rottner, Nadja, PhD, Columbia University, Associate Professor of Art History
Skrbina, David, PhD, University of Bath, Lecturer of Philosophy
Smith, Jonathan, PhD, Columbia University, William E Stirton Professor of Professor, English Language and Literature, and Behavioral Sciences
Smith Pollard, Deborah, PhD, Michigan State University, Professor of English Literature and Humanities

Department of Mathematics and Statistics
Agarwal, Mahesh, PhD, University of Michigan, Associate Professor of Mathematics
Cengiz-Phillips, Nesrin, PhD, Western Michigan University, Associate Professor of Mathematics Education
Clifford, John H., PhD, Michigan State University, Professor of Mathematics
Fiore, Thomas, PhD, University of Michigan, Associate Professor of Mathematics
Georgieva-Hristova, Yulia, PhD, Texas A & M University, Assistant Professor of Mathematics
Jabbusch, Kelly, PhD, University of Washington, Assistant Professor of Mathematics
Kim, Hyeyin, PhD, University of Maryland College Park, Assistant Professor of Mathematics
Krebs, Angela, PhD, Michigan State University, Associate Professor of Mathematics Education and Mathematics
Lachance, Michael A., PhD, University of South Florida, Professor of Mathematics
Macany, Montaha, PhD, University of Manchester (England), Lecturer of Mathematics
Massey, Frank J., PhD, University of California-Berkeley, Associate Professor of Mathematics and Computer Science
Phillips, Benjamin, PhD, Western Michigan University, Lecturer of Mathematics
Rathouz, Margaret, PhD, University of California-San Diego, Associate Professor of Mathematics Education
Remski, Joan, PhD, Michigan State University, Professor of Mathematics
Viswanathan, Aditya, PhD, Arizona State University, Assistant Professor of Mathematics and Statistics
Wiggins, Alan, PhD, Texas AM University, Associate Professor of Mathematics
Zeytuncu, Yunus, PhD, Ohio State University, Associate Professor of Mathematics
Zhao, Jennifer, PhD, Indiana University, Professor of Mathematics

Department of Natural Science
Abramyan, John, PhD, University of Queensland (Australia), Assistant Professor of Biology
Al-Qaisi, Sami, PhD, University of Akron, Lecturer of Chemistry
Allen, Angela, MS, Wayne State University, Lecturer of Chemistry
Bandopadhyay, Krisanu, PhD, National Chemical Lab University of Pune (India), Professor of Chemistry
Bazzi, Ali, PhD, Wayne State University, Professor of Chemistry
Bazzi, Judith, MA, Wayne State University, Lecturer of Chemistry
Benore, Marilee B., PhD, University of Delaware, Professor of Biology and Biochemistry
Bowlin, Melissa, PhD, Princeton University, Associate Professor of Biology
Clarkson, William I., PhD, University of Southampton (UK), Assistant Professor of Physics and Astronomy
Constantinides, Christos, PhD, University of Cambridge (UK), Assistant Professor of Chemistry
Danielson-Francois, Anne, PhD, University of Arizona, Associate Professor of Biology
Deng, Yiwei, PhD, Swiss Federal Institute of Technology, Associate Professor of Chemistry
Donahue, Craig J., PhD, University of Massachusetts, Associate Professor of Chemistry
Gelderloos, Orin G., PhD, Northwestern University, Professor of Biology and Environmental Studies
Hartshorn, Patricia, MS, Wayne State University, Lecturer of Natural Sciences
Heinicke, Matthew, PhD, Pennsylvania State University, Assistant Professor of Biology
Hetrick, James, PhD, University of Illinois at Urbana-Champaign, Lecturer of Physics
Kondapalli, Kalyan, PhD, Wayne State University, Assistant Professor of Biology
LaCommare, Katherine S., PhD, University of Massachusetts, Lecturer of Biology
Lawson, Daniel, PhD, Michigan State University, Professor of Chemistry
Li, Xiaohua (Shannon), PhD, City University of New York, Assistant Professor of Chemistry
Licata, Nicolas, PhD, University of Michigan, Assistant Professor of Physics
Marincean, Simona, PhD, Michigan State University, Associate Professor of Chemistry
Miller, Donald R., MS, University of Michigan, Lecture of Natural Sciences
Murray, Kent, PhD, University of California-Davis, Professor of Geology
Naik, Vaman M, PhD, University of Michigan, Professor of Physics
Napieralski, Jacob, PhD, Purdue University, Professor of Geology
Nesmith, Judy M., MS, Michigan State University, Lecturer of Biology
Oelkers, Peter M., PhD, Wake Forest University, Associate Professor of Biology
Prentis, Jeffrey J., PhD, University of Michigan, Professor of Physics
Riebesell, John, PhD, University of Chicago, Associate Professor of Biology
Saillant, Jean M., MA, Indiana University, Lecturer of Biology
Smith, Sheila, PhD, University of North Carolina, Associate Professor of Chemistry
Stasser, Jay P., PhD, Oregon Health and Science University, Lecturer of Chemistry and Biochemistry
Stewart, Ogie, PhD, Oakland University, Lecturer of Chemistry
Susko, David, PhD, University of Windsor, Associate Professor of Biology
Thomas, John, PhD, University of Arizona, Professor of Biology
Tiquia-Arashiro, Sonia, PhD, University of Hong Kong, Professor of Biology and Microbiology
Walters, Claudia K., PhD, Michigan State University, Lecturer of Earth and Environment
Wang, Jin, PhD, University of Queensland (Australia), Associate Professor of Physics

Department of Social Sciences
Akers, Joshua, PhD, University of Toronto, Assistant Professor of Geography and Urban and Regional Studies

Amin, Camron M., PhD, University of Chicago, Professor of History
Anderson, R. Warren, PhD, George Mason University, Associate Professor of Economics
Bawardi, Hani, PhD, Wayne State University, Associate Professor of History
Bergeron, Suzanne, PhD, University of Notre Dame, Professor of Women’s Studies and Social Sciences
Borquez, Julio, PhD, University of Michigan, Associate Professor of Political Science
Czap, Natalia, PhD, Moscow State University and University of Nebraska-Lincoln, Associate Professor of Economics
Dye, Keith, PhD, University of Toledo, Assistant Professor of African and African American Studies and History
Herschock, Martin, PhD, University of Michigan, Professor of History
Hickey, Georgina, PhD, University of Michigan, Professor of History
Howell, Sarah (Sally), PhD, University of Michigan, Associate Professor of History
Koumpias, Antonios, PhD, Georgia State University, Assistant Professor of Economics
Kursman, Nancy, PhD, Rice University, Lecturer of Political Science
Lunn, Joe, PhD, University of Wisconsin-Madison, Professor of History
Luxon, Emily, PhD, University of California College Park, Assistant Professor of Political Science
Miteza, Ilir, PhD, University of Wisconsin-Milwaukee, Professor of Economics
Moran, Gerald F., PhD, Rutgers University, Professor of History
Muller, Anna, PhD, Indiana University, Assistant Professor of History
Pennock, Pamela, PhD, Ohio State University, Professor of History
Pietrykowski, Bruce, PhD, New School for Social Research, Professor of Economics
Pyrozhenco, Vadym, PhD, Syracuse University, Assistant Professor of Public Administration
Rosano, Michael, PhD, University of Toronto, Associate Professor of Political Science
Rusch, Lara C., PhD, University of Michigan, Associate Professor of Political Science
Sanjian, Ara, PhD, University of London, Associate Professor of History
Smith, Patricia, PhD, Virginia Polytechnical Institute and State University, Professor of Economics
Sollenberger, Mitchel A., PhD, Catholic University, Professor of Political Science
Stockton, Ronald R., PhD, Michigan State University, Professor of Political Science
Applied and Computational Mathematics

The Applied and Computational Mathematics (ACM) program provides graduate-level education in applied mathematics for people whose goal is to develop comprehension of principles of applied mathematics and skills in employing those principles in industrial or scientific settings. It has three central themes: general principles and theories of applied mathematics, the construction and analysis of mathematical models, and the development and efficient execution of computational mathematical algorithms. Effective use of advanced applied mathematical techniques has become increasingly important in industrial settings as the amount of sophisticated simulation software has mushroomed. People are needed who can help engineers, scientists and managers in the precise formulation of complex problems and in selecting the analytical methods and software appropriate for their solution. These people should understand the algorithms underlying mathematical software and be able to implement additional mathematical algorithms knowledgeably and efficiently in the framework of existing software. Finally, these people need to be able to interpret the results of computations to others. It is the goal of the program to provide people with these skills.

The Program

The key components of this evening program involve the integration of applied mathematics, mathematical modeling and numerical analysis. The ACM program provides not only coursework in various areas of applied mathematics, but also opportunities for independent or collaborative work. These approaches to learning contribute to a student’s outlook and depth of understanding. The program supports the development and enhancement of students’ skills useful in industrial and scientific careers, and in other careers having applied mathematics as its primary focus. It is geared toward three groups of prospective students: individuals in established careers who want or require further training for their current positions, individuals in the workforce who wish to retrain for new career directions, in some cases preparing for a more mathematically-oriented assignment with their current employer, and recent graduates who desire a deeper understanding of applied mathematics as an aid in launching a career.

Admission and Prerequisites

Admission to the ACM program as a regular student requires a BA or a BS degree in mathematics, computer and information science, engineering, a physical science or a life science earned from a program at an accredited institution with an average of B or better. Individuals with other degrees or less than a B average may be considered for conditional admission status and may be required to submit evidence of potential for success in a graduate program. An entering student should have completed three courses in Calculus, including multivariate calculus, plus introductory courses in Linear Algebra and Differential Equations. Deficiencies in prerequisites may be made up after entrance to the Graduate Program. However, credits received in courses elected to make up the deficiencies do not count toward the degree.

Application instructions can be found at: umdearborn.edu/gradapplynow

Each applicant should submit the following:

1. Official transcripts from all universities attended.
2. A one-page statement of purpose describing the applicant’s career goals and personal objectives in pursuing the program.
3. Three letters of recommendation. At least one letter must be from an academic source.
4. Students whose native language is not English are also required to satisfy the English Language Requirements for Admission which can be found in the General Information section of this catalog.

For more information, visit the ACM website (https://umdearborn.edu/casg/graduate-programs/programs/master-science-applied-and-computational-mathematics) or call 313-583-6321.

Advanced Standing

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Horace H. Rackham School of Graduate Studies regulations (http://www.rackham.umich.edu/current-students/policies/academic-policies). You may transfer up to one-half (1/2) the minimum number of credit hours required for your master’s or professional degree from U-M/non-Rackham departments and programs (including Ann Arbor, Dearborn and Flint).

Degree Requirements

30 semester hours of graduate course work with a cumulative grade point average of B or better. The 30 hours must be selected from lists of approved courses and be approved by the student’s graduate advisor. At least 15 of the hours must be Mathematics and Statistics courses. Up to six credit hours toward the degree may be granted by the Graduate Program Committee to a student through the transfer of credit for approved graduate-level courses. Such courses must have been completed within the past five years with a grade of B or better at an accredited institution and not have been applied in whole or in part toward another degree or certificate. In addition to the specific degree requirements listed here, the general Master’s degree requirements of the Horace H. Rackham School of Graduate Studies (http://www.rackham.umich.edu/current-students/policies/academic-policies) apply.

Specific Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 551</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 554</td>
<td>Fourier and Boundary</td>
<td>3</td>
</tr>
<tr>
<td>MATH 555</td>
<td>Func of a Complex Var with App</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one course from each of the following areas. At most, nine credit hours of these courses may count toward the 30 credit hours.

Mathematical Analysis:

Wraight, Jamie, PhD, University of Toledo, Lecturer of History
Wayman, Francis W., PhD, University of Pennsylvania, Professor of Political Science
Walters, Claudia, PhD, Michigan State University, Lecturer of Geography
Vecchiola, Carla, PhD, University of Michigan, Lecturer of History
Thomson, Dale, PhD, University of Maryland-Baltimore County, Associate Professor of Political Science
Sun, Rusi, PhD, Rutgers The State University of New Jersey, Assistant Professor of Political Science

Political Science

Sun, Rusi, PhD, Rutgers The State University of New Jersey, Assistant Professor of Political Science
Thomson, Dale, PhD, University of Maryland-Baltimore County, Associate Professor of Political Science
Vecchiola, Carla, PhD, University of Michigan, Lecturer of History
Walters, Claudia, PhD, Michigan State University, Lecturer of Geography
Wayman, Francis W., PhD, University of Pennsylvania, Professor of Political Science
Wraight, Jamie, PhD, University of Toledo, Lecturer of History

Applied and Computational Mathematics

The Applied and Computational Mathematics (ACM) program provides graduate-level education in applied mathematics for people whose goal is to develop comprehension of principles of applied mathematics and skills in employing those principles in industrial or scientific settings. It has three central themes: general principles and theories of applied mathematics, the construction and analysis of mathematical models, and the development and efficient execution of computational mathematical algorithms. Effective use of advanced applied mathematical techniques has become increasingly important in industrial settings as the amount of sophisticated simulation software has mushroomed. People are needed who can help engineers, scientists and managers in the precise formulation of complex problems and in selecting the analytical methods and software appropriate for their solution. These people should understand the algorithms underlying mathematical software and be able to implement additional mathematical algorithms knowledgeably and efficiently in the framework of existing software. Finally, these people need to be able to interpret the results of computations to others. It is the goal of the program to provide people with these skills.

The Program

The key components of this evening program involve the integration of applied mathematics, mathematical modeling and numerical analysis. The ACM program provides not only coursework in various areas of applied mathematics, but also opportunities for independent or collaborative work. These approaches to learning contribute to a student’s outlook and depth of understanding. The program supports the development and enhancement of students’ skills useful in industrial and scientific careers, and in other careers having applied mathematics as its primary focus. It is geared toward three groups of prospective students: individuals in established careers who want or require further training for their current positions, individuals in the workforce who wish to retrain for new career directions, in some cases preparing for a more mathematically-oriented assignment with their current employer, and recent graduates who desire a deeper understanding of applied mathematics as an aid in launching a career.

Admission and Prerequisites

Admission to the ACM program as a regular student requires a BA or a BS degree in mathematics, computer and information science, engineering, a physical science or a life science earned from a program at an accredited institution with an average of B or better. Individuals with other degrees or less than a B average may be considered for conditional admission status and may be required to submit evidence of potential for success
 Modeling:
MATH 562 Mathematical Modeling

Numerical Methods:
MATH 572 Intro to Numerical Analysis
or MATH 573 Matrix Computation

Modeling Specialization Areas
Select at least four courses from the modeling specialization areas listed below. Not all four may be from the same area.

1. Linear and Discrete Models:
   - MATH 515 B-Splines & Their Applications
   - MATH 523 Linear Algebra w/Applications
   - STAT 530 Applied Regression Analysis
   - MATH 558 Introduction to Wavelets
   - MATH 584 Applied & Algorithmic Graph Theory

2. Differential Models:
   - MATH 504 Dynamical Systems
   - MATH 514 Fin Diff Meth for Diff Equat
   - MATH 516 Fin Elemnt Meth for Diff Equat
   - MATH 554 Fourier and Boundary

3. Statistical Models:
   - MATH 520 Stochastic Processes
   - MATH 525 Mathematical Statistics II
   - STAT 535 Data Analysis and Modeling
   - STAT 545 Reliability & Survival Analys
   - STAT 530 Applied Regression Analysis
   - STAT 560 Time Series Analysis

Project or Independent Research
- MATH 595 Master’s Project Seminar
- or MATH 599 Independent Research Project

Cognate Courses
Six credit hours of cognate courses outside the Department of Mathematics and Statistics are required. The courses should be selected from an approved list.

Enrollment Science

The Master of Science in Environmental Science (MSES) is a two-year program designed for students who wish to pursue graduate study on a full or part-time basis so they can balance professional and personal goals. Courses are primarily held in the evening and occasionally on Saturdays. Graduate students in the Department of Natural Sciences are talented and often have significant professional experience. Graduate faculty are highly qualified and experienced, and the educational culture is one in which learning, teaching, and research are emphasized. Pursuing a graduate degree in Environmental Science at UM-Dearborn will result in substantial growth in knowledge, skills, and long-term career potential.

With approximately 40 students enrolled, we stress personalized, individual attention to graduate student education and research. The program provides a choice between emphasizing the environmental aspects of biology, chemistry, or geology, or a more broadly focused approach involving courses in each of the above fields. Faculty and students are engaged in the research of environmental issues including:

- wetlands delineation;
- the treatment of nitrate contaminated groundwater with microbiological techniques;
- the impact of land use on groundwater and surface water quality;
- the use of phytoremediation in the cleanup of polycyclic aromatic hydrocarbon contaminated soil;
- brownfield investigation and restoration;
- migration behavior and ecology of birds, and behavioral ecology of spiders and other arthropods;
- microbial source tracking;
- the use of microorganisms in biofuel synthesis; and microbial community dynamics and diversity in marine and freshwater sediments.
Research Facilities

The Department of Natural Sciences has extensive networked computing facilities, including scanners, digitizers and plotters, GIS and groundwater modeling software, GPS equipment, ICP-MS and labs for preparation and chemical analysis of environmental, biological and geological samples. We also have extensive mineralogic and paleontologic collections as well as the Merritt Geode Collections, one of the finest in the world. A focal point for the environmental program on the Dearborn campus is the Environmental Interpretive Center that opened in May, 2001. Rouge River Bird Observatory (RRBO) studies the importance of urban areas to birds, especially migratory birds. We are the longest-running, full-time urban bird research station in North America.

Admission and Prerequisites

Regular admission to the MSES program is extended to students with a Bachelor’s Degree in environmental science biology, chemistry and geology from an accredited program who have completed all program prerequisites and a cumulative undergraduate GPA 3.1 or higher (based on a 4.0 scale). The Graduate Record Exam (GRE) is not required if these conditions have been met. Conditional or probationary admission to the MSES program is extended to students with an undergraduate degree in some other field if they meet other criteria (completed the GRE, have written a convincing letter explaining their commitment to the degree and have obtained strong letters of recommendation) and can complete program prerequisites within one year of acceptance. Minimum program prerequisites include one year of general chemistry and one upper division course in chemistry – typically quantitative methods analysis or organic chemistry; introductory courses in biology and geology, a field course in either biology or geology; one year (two semesters) of calculus, a one-semester course in organic chemistry and a course in statistics. Deficiencies may be satisfied by completing prerequisite courses at UM-Dearborn or at another school with the approval of the graduate program committee.

Each applicant should submit the following:

1. Official transcripts from all universities attended.
2. A one-page statement of purpose describing the applicant’s career goals and personal objectives in pursuing the program.
3. Three letters of recommendation.
4. Students whose native language is not English are also required to satisfy the English Language Requirements for Admission which can be found in the General Information section of this catalog.

Application instructions can be found at: umdearborn.edu/gradapplynow

For more information, visit the MSES website (https://umdearborn.edu/casl/graduate-programs/programs/master-science-environmental-science) or call 313-583-6321.

Advanced Standing

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Horace H. Rackham School of Graduate Studies regulations. Up to one-half the minimum number of credit hours required for your master’s or professional degree from U-M/non-Rackham departments and programs (including Ann Arbor, Dearborn and Flint) may be transferred.

Degree Requirements

The MSES degree requires 30 semester hours of graduate coursework that can be satisfied by one of three options:

- **Plan A. Thesis Option** 24 credit hours (500 level or above) plus ESCI 699. A thesis will be based on original research. (Preferred by the environmental consulting industry.)
- **Plan B. Project Option** 27 credit hours (500 level or above) plus ESCI 698. A project will be based on library/field/laboratory research or classroom exercises demonstrating analysis and interpretation of scientific data.
- **Plan C. Coursework Option** 30 credit hours (500 level or above) (Not recommended for students interested in doctoral degrees).

The non-thesis M.S. program has an emphasis on coursework, while the thesis-based/project-based degree has an emphasis on both coursework and original research. Thesis-based M.S. students will experience the excitement of performing guided research.

The general master’s degree requirements on the Rackham School of Graduate Studies website (http://www.rackham.umich.edu/current-students/policies/academic-policies) are to be considered as degree requirements. In addition, a cumulative grade point average of B or better is required. For more information, visit the MSES website (https://umdearborn.edu/casl/graduate-programs/programs/master-science-environmental-science).

Three Options for a MSES Degree

- **Plan A. Thesis Option** 24 credits hours (500 or above level) plus 6 credits ESCI 699. A thesis will be based on original research. (Preferred by the environmental consulting industry.)
- **Plan B. Project Option** 27 credit hours (500 level or above) plus ESCI 698. A project will be based on library/field/laboratory research or classroom exercises demonstrating analysis and interpretation of scientific data.
- **Plan C. Coursework Option** 30 credit hours (500 level or above) (Not recommended for students interested in doctoral degrees).

Specific Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 508</td>
<td>Invasive Species Ecology</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 514</td>
<td>Applied Ecology</td>
<td></td>
</tr>
<tr>
<td>CHEM 548</td>
<td>Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 572</td>
<td>Environmental Communications</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 574</td>
<td>Watershed Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 550</td>
<td>Glacial Geology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select fifteen credit hours from:

Department of Natural Sciences:

- BIOL 508 | Invasive Species Ecology
- BIOL 515 | Aquatic Ecosystems
- BIOL 516 | Limnology
- BIOL 519 | Behavior and Evolution
- BIOL 522 | Conservation Biology
- BIOL 524 | Biology of Spiders
Health Psychology

Master of Science: Specialization in Health Psychology

This two-year, 39-credit program is designed for the student who wishes to obtain a research oriented graduate degree in the Behavioral Sciences. This program focuses on theory and research in Health Psychology. The program is intended to serve several populations including students who would like to continue graduate training in a research related behavioral sciences field, as well as individuals who require an advanced degree to further their careers. It should be noted that this program is not intended to lead to limited licensure as a clinician in Michigan.

The Program

The 39-credit program consists of 24 hours (8 courses) in core areas of Health Psychology. Students will complete either a 3 credit project or a 6 credit thesis under the supervision of program faculty. The remaining 9-12 credits will be composed of elective courses that focus on one or more content areas.

Admission and Prerequisites

Admission decisions are based upon applicants’ records of academic achievement, Graduate Record Examination (general test) scores, letters of recommendation, and personal statements of education and career goals. More specifically a BA or BS in Psychology or a related major with a cumulative undergraduate GPA of at least 3.0 (4.0 scale) and a minimum GRE score (general test) of approximately 300 are required for admission. Students without undergraduate psychology degrees are welcome to apply but will need Introductory Psychology, Statistics, and Abnormal Psychology; undergraduate Health Psychology and Research Methods are strongly recommended.

Application instructions can be found at: umdearborn.edu/gradapplynow

Each applicant should submit the following:

1. Official transcripts from all universities attended.
2. A 600-word statement of purpose describing the applicant’s personal history, educational and professional goals and personal objectives in pursuing the program.
3. Three letters of recommendation. (at least 2 from academic sources).
4. GRE Test Results (general test).
5. Students whose native language is not English are also required to satisfy the English Language Requirements for Admission which can be found in the General Information section of this catalog.

For more information, call 313-583-6321 or visit the health psychology (https://umdearborn.edu/casl/graduate-programs/programs/master-science-psychology/health-psychology) website.

Plan of Work

Students will be required to complete a plan of work during their first semester in the MS in Psychology: Specialization in Health Psychology program. The plan of work requires discussion between students and their program advisers. Copies will be retained by the student and the program director or program advisor.

University of Michigan-Dearborn

BIOL 545 Restoration Ecology
BIOL 552 Med & Env Toxicology
BIOL 556 Behavioral Biology
BIOL 561 Advances in Cell Biology
BIOL 590 Topics in Biology
CHEM 535 Green Chemistry
CHEM 590 Topics in Chemistry
ENST 574 Environmental Education
ESCI 504 Field Studies in Env Science
ESCI 525 Soil in the Environment
ESCI 572 Environmental Communications
ESCI 585 Spatial Analysis and GIS
ESCI 595 Topics in Environmental Science
ESCI 597 Off-Campus Independent Study
ESCI 599 On-Campus Independent Study
ESCI 698 MSES Master’s Project
ESCI 699 MSES Master’s Thesis
GEOL 510 Urban Geology
GEOL 560 Engineering Geology
GEOL 570 Geochemistry
GEOL 574 Urban Watersheds
GEOL 575 Contaminant Hydrogeology
GEOL 577 Geology Field Methods
GEOL 578 Geology of the National Parks
GEOL 587 Groundwater Modeling
GEOL 590 Topics in Earth Science
MICR 505 Applied & Environ Microbiology
LIBS 586 Ecological Economics
STAT 530 Applied Regression Analysis
STAT 545 Reliability & Survival Analysis
STAT 555 Environmental Statistics

Total Credit Hours 30

Liberal Studies

Program is not currently accepting new applications.

Psychology

The Behavioral Sciences Department at University of Michigan-Dearborn offers a Master of Science (MS) in Psychology (https://umdearborn.edu/casl/graduate-programs/programs/master-science-psychology) in two specializations.

The Specialization in Clinical Health Psychology (p. 482) is a two-year 48-credit program that trains mental health care providers to work in primary care settings, as well as more traditional clinical psychology settings.

The Specialization in Health Psychology (p. 481) is a two-year 39-credit program that provides students with intensive training in one or more content areas within Health Psychology.

Other Departments:

<table>
<thead>
<tr>
<th>LIBS 586</th>
<th>Ecological Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 530</td>
<td>Applied Regression Analysis</td>
</tr>
<tr>
<td>STAT 545</td>
<td>Reliability &amp; Survival Analysis</td>
</tr>
<tr>
<td>STAT 555</td>
<td>Environmental Statistics</td>
</tr>
</tbody>
</table>
Degree Requirements

To complete the degree program a minimum of 39 credits are required in the Behavioral Sciences. The following schedule provides the sequence of courses that students in the MS in Psychology: Specialization in Health Psychology program are expected to take. Although it is possible to take some of the courses out of sequence, many build on previous courses and all course schedules will need to be approved by the program director or your appointed program advisor.

Specific Course Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Year 1</strong></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>PSYC 557 Advanced Health Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSYC 5825 Basic Methods Health Psych</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective 1</td>
<td>3</td>
</tr>
<tr>
<td>Winter</td>
<td>PSYC 5835 Adv Methods Health Psych</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSYC 575 Bio Foundations of Health Psych</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PPOL 506 Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Spring/Summer</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSYC 584 Research Methods in Beh Med</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Year 2</strong></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>PSYC 593 Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective 2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective 3</td>
<td>3</td>
</tr>
<tr>
<td>Winter</td>
<td>HPS 512 Principles of Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSYC 697 Health Psych Thesis Research</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>39</td>
</tr>
</tbody>
</table>

**Electives**

If PSYC 697 (thesis, 6 credits) completed, then 9 credit hours of electives is required. If PSYC 592 (project, 3 credits) completed, then 12 credit hours of electives is required. Examples of elective courses that would fulfill program requirements include: Advanced Psychopathology (PSYC 545), Multicultural Counseling (PSYC 523), Human Sexual Behavior (PSYC 546), and Medical Sociology (SOC 540). Courses elected as an undergraduate at UM-Dearborn may not be taken for graduate credit.

More information about the specific elective courses that will fulfill program requirements should be discussed with your program advisor or the program director each semester.

**Thesis/Project Requirements**

Students in the MS in Psychology: Specialization in Health Psychology program will complete either a 3 credit Project (PSYC 592) or a 6 credit master's thesis (PSYC 697) during their second year.

**Grade Requirements**

The graduate grading system is intended to reflect higher standards of critical and creative scholarship than those applied at the undergraduate level. To receive a graduate grade in courses open to both undergraduate and graduate students, the graduate student is expected to do work of superior quality and is required to do additional work specified by the instructor. Graduate students are required to earn a B (3.0) average or higher to satisfy degree requirements.

Grades of C+ and below are unsatisfactory for graduate level work and constitute valid cause for dropping a student from the graduate program. To be awarded the MS in Psychology: Specialization in Health Psychology, a student must have achieved at least a 3.0 GPA (a B average). No more than two grades of C may be applied toward the MS in Psychology: Specialization in Health Psychology degree; grades of C- or lower will not be applied toward the MS in Psychology: Specialization in Clinical Health Psychology. Students who fail to maintain a 3.0 average or have more than two C or lower grades will be placed on academic probation for the term following the lapse. Upon the recommendation of the Program Director, a student may be granted an opportunity to correct the scholastic and/or academic deficiency. Students who fail to meet program requirements may be denied permission to register or may be required to withdraw from the program.

**Clinical Health Psychology**

**Master of Science: Specialization in Clinical Health Psychology**

This two-year, 48-credit program trains mental health care providers to work with a variety of medical populations, as well as in more traditional clinical psychology settings. The curriculum of the program, in conjunction with 1 year of supervised postgraduate experience
in an organized health care setting, is designed to fulfill the course requirements for the Michigan Limited License.

The Program

The 48-credit program consists of 11 required courses (36 credits) in core areas of Clinical Health Psychology. Six credit hours will be devoted to practicum in a community setting. Students will take either two elective courses or complete a master’s thesis under the supervision of program faculty.

Admission and Prerequisites

Admission decisions are based upon applicants’ records of academic achievement, Graduate Record Examination (general test) scores, letters of recommendation, and personal statements of education and career goals. More specifically a BA or BS in Psychology or a related major with a cumulative undergraduate GPA of at least 3.0 on a 4.0 scale and a minimum GRE score (general test) of approximately 300 are required for admission. Students without undergraduate psychology degrees are welcome to apply but will need Introductory Psychology, Statistics, and Abnormal Psychology; undergraduate Health Psychology and Research Methods are strongly recommended.

Each applicant should submit the following:

1. Official transcripts from all universities attended.
2. A 600-word statement of purpose describing the applicant’s personal history, educational and professional goals and personal objectives in pursuing the program. An additional 300-word statement describing the applicant’s potential effectiveness as a mental health professional are required for students applying to the Clinical Health Psychology program.
3. Three letters of recommendation. (at least 2 from academic sources).
4. GRE Test Results (general test).
5. Students whose native language is not English are also required to satisfy the English Language Requirements for Admission which can be found in the General Information section of this catalog.

For more information, call 313-583-6321 or visit the clinical health psychology (https://umdearborn.edu/casl/graduate-programs/programs/master-science-psychology/clinical-health-psychology) website.

Plan of Work

Students will be required to complete a Plan of Work during their first semester in the MS in Psychology: Specialization in Clinical Health Psychology program. The plan of work requires discussion between students and their program advisers. Copies will be retained by the student and the program director or program advisor.

Degree Requirements

To complete the degree program a minimum of 48 credits are required in the Behavioral Sciences. The following schedule provides the sequence of courses that students in the MS in Psychology: Specialization in Clinical Health Psychology program are expected to take. Although it is possible to take some of the courses out of sequence, many build on previous courses and all course schedules will need to be approved by the program director or your appointed program advisor.

### Specific Course Requirements

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 557</td>
<td>Advanced Health Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 5825</td>
<td>Basic Methods Health Psych</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 545</td>
<td>Advanced Psychopathology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 5835</td>
<td>Adv Methods Health Psych</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 547</td>
<td>Therapeutic Intervention</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 575</td>
<td>Bio Foundations of Health Psyc</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 593</td>
<td>Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 549</td>
<td>Psychological Assessment II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 555</td>
<td>Ind&amp;Grp Tech in Clin Hlth Psyc</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 698</td>
<td>Pract. Clinical Health Psyc</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 697</td>
<td>Health Psych Thesis Research</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 698</td>
<td>Pract. Clinical Health Psyc</td>
<td>3</td>
</tr>
</tbody>
</table>

Plan of Work

Students will be required to complete a Plan of Work during their first semester in the MS in Psychology: Specialization in Clinical Health Psychology program. The plan of work requires discussion between students and their program advisers. Copies will be retained by the student and the program director or program advisor.

Degree Requirements

To complete the degree program a minimum of 48 credits are required in the Behavioral Sciences. The following schedule provides the sequence of courses that students in the MS in Psychology: Specialization in Clinical Health Psychology program are expected to take. Although it is possible to take some of the courses out of sequence, many build on previous courses and all course schedules will need to be approved by the program director or your appointed program advisor.
Electives
Students are required to have 6 credits in approved elective courses if they do not elect to complete a master’s thesis. Information about specific elective courses that will fulfill these requirements should be discussed with your program advisor or the program director each semester.

Grade Requirements
The graduate grading system is intended to reflect higher standards of critical and creative scholarship than those applied at the undergraduate level. To receive a graduate grade in courses open to both undergraduate and graduate students, the graduate student is expected to do work of superior quality and is required to do additional work specified by the instructor. Graduate students are required to earn a B (3.0) average or higher to satisfy degree requirements.

Grades of C+ and below are unsatisfactory for graduate level work and constitute valid cause for dropping a student from the graduate program. To be awarded a MS in Clinical Health Psychology, a student must have achieved at least a 3.0 grade point average (a B average). C+ grades in the core classes, PSYC 545, PSYC 547, PSYC 548, PSYC 549, PSYC 565, PSYC 593, and PSYC 698 will not be applied toward the MS in Psychology: Specialization in Clinical Health Psychology degree. A grade of B- or higher is required in each of these classes. Students may re-take the class one time to raise the grade to an acceptable level. Furthermore, no more than two grades of C in other courses may be applied toward the MS in Psychology: Specialization in Clinical Health Psychology degree; grades of C- or lower will not be applied toward the MS in Psychology: Specialization in Clinical Health Psychology degree. Students who fail to maintain a 3.0 average or have more than two C or lower grades will be placed on academic probation for the term following the lapse. Upon the recommendation of the program director, a student may be granted an opportunity to correct the scholastic and/or academic deficiency. Students who fail to meet program requirements may be denied permission to register or may be required to withdraw from the program.

Public Administration
The University of Michigan-Dearborn offers the Master of Public Administration (MPA) degree under the authority of the Horace H. Rackham School of Graduate Studies.

The program is designed to serve a diverse student body representative of a variety of human service organizations. MPA students are mainly mid-career administrators committed to learning and developing as individuals and professionals. Seminars are conveniently offered in evenings or online to accommodate working administrators. The seminars are designed to promote extensive sharing of professional experiences and the examination of issues important to contemporary administration.

The MPA curriculum emphasizes practical skills and information from a range of governmental, nonprofit and educational organizations. The classes are designed to develop technical administrative skills and competencies in leadership, finance, personnel, planning and evaluation. Given the diversity of candidate backgrounds and the agencies represented, MPA candidates are encouraged to develop their ability to work in a variety of organizational settings and with a diverse group of individuals.

The Program
The MPA program requires successful completion of: 36 credit hours, including (1) a 15-credit hour core; (2) specialty courses approved by the candidate’s program advisor, and (3) an Assessment Seminar at the conclusion of the degree.

Several areas of specialization are offered, each with specific requirements. Some require additional credit hours. Students with insufficient public or nonprofit administrative experience must also complete an internship. A minimum cumulative GPA of B (3.0) must be maintained to continue in the program.

Please see the MPA program (https://umdearborn.edu/casl/graduate-programs/programs/master-public-administration) website for additional information.

Admission
Eligibility for entrance into the MPA program includes a clear interest in the service sector, a bachelor’s degree from an accredited school, an undergraduate 3.0 GPA (on a 4-point scale) or better, and an ability to write on an acceptable level. Individuals with less than a 3.0 average, but no lower than 2.75, may be considered for conditional admission status. Meeting these minimum requirements does not guarantee admission.

Application Procedures
Individuals who wish to apply for the Master of Public Administration degree program should follow the application instructions found at: umdearborn.edu/gradapplynow If you have any questions, please call 313-593-1183.

Regulations
Master of Public Administration Program students are fully responsible for following both the program and Rackham requirements.

Rackham School of Graduate Studies academic policies can be found at: rackham.umich.edu/policies/academic_policies/ (http://www.rackham.umich.edu/policies/academic_policies)

Registration Information
Students who wish to enroll in a directed/ independent study or a course other than those listed in the program curriculum must obtain permission from the program director prior to registering. No courses are to be elected on a pass-fail basis. Students whose grade point average falls below a 3.0 (B) will be placed on probation (D+ and lower grades do not count toward graduation but are calculated as 0 for GPA). Continued deficiencies will result in a required withdrawal from the University.
Students who have been absent for one calendar year must apply for readmission before registering for classes.

All newly admitted students must meet with their advisor to develop an official plan of study. Advising may be obtained by phone or appointment at the discretion of the advisor.

**Residency Requirements and Time Limits**

Students seeking a MPA degree must fulfill the residency requirement by completing at least one-half of their degree in courses offered by the UM-Dearborn. All coursework toward the MPA degree must be completed within five consecutive years from the date of first enrollment.

**Graduation**

Students who plan to graduate in a specific semester must submit a diploma application found online at umdearborn.edu/rr_apply-graduate/. MPA students may participate in graduation exercises (if desired) with the Dearborn and/or Ann Arbor student body.

The full-time faculty of the Master of Public Administration (MPA) program provide academic advising regarding program requirements, the student’s coursework, and educational interests. They ensure that the student experiences a smooth transition to the university, and the opportunity to have a productive graduate experience.

Upon admission, each student is assigned to a specific advisor. Students are encouraged to meet with their advisor after admission to discuss sequencing of courses, and other matters that will help ensure success in the MPA program. Students are encouraged to meet with their advisor regularly and consult with him or her in the planning of coursework and career plans.

**Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public Administration Core</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PADM 505</td>
<td>Intro to Pub &amp; Non-Prof Admin</td>
<td>3</td>
</tr>
<tr>
<td>PADM 520</td>
<td>Leadership and Administration</td>
<td></td>
</tr>
<tr>
<td>PADM 540</td>
<td>Admin of Financial Resources</td>
<td></td>
</tr>
<tr>
<td>PADM 560</td>
<td>Admin of Human Resources</td>
<td></td>
</tr>
<tr>
<td>PADM 580</td>
<td>Info Sys and Stats for Admin</td>
<td></td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 18 credit hours approved by advisor:</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>PADM 507</td>
<td>Strategic Comm for Admin</td>
<td></td>
</tr>
<tr>
<td>PADM 523</td>
<td>Administrative Law</td>
<td></td>
</tr>
<tr>
<td>PADM 525</td>
<td>Consulting and Staff Dev</td>
<td></td>
</tr>
<tr>
<td>PADM 527</td>
<td>PR for Nonprofit/Public Sector</td>
<td></td>
</tr>
<tr>
<td>PADM 548</td>
<td>Fundraising</td>
<td></td>
</tr>
<tr>
<td>PADM 561</td>
<td>Organization Dev and Theory</td>
<td></td>
</tr>
<tr>
<td>PADM 562</td>
<td>Labr Relations in Serv Setting</td>
<td></td>
</tr>
<tr>
<td>PADM 564</td>
<td>Performance Appraisal</td>
<td></td>
</tr>
<tr>
<td>PADM 581</td>
<td>Strat Planning/Needs Assessmnt</td>
<td></td>
</tr>
<tr>
<td>PADM 582</td>
<td>Policy Analysis &amp; Development</td>
<td></td>
</tr>
<tr>
<td>PADM 583</td>
<td>Program Evaluation</td>
<td></td>
</tr>
<tr>
<td>PADM 585</td>
<td>Technology for Administrators</td>
<td></td>
</tr>
<tr>
<td>PADM 586</td>
<td>Ethics in Public Pol &amp; Admin</td>
<td></td>
</tr>
<tr>
<td>POL 584</td>
<td>Revitalizing Cities</td>
<td></td>
</tr>
</tbody>
</table>

**Assessment Seminar**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PADM 650</td>
<td>Assessment Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

**Internship**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PADM 720</td>
<td>Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

36

1 An internship (additive credit only; they do not satisfy the 36 credits for core, elective, or assessment courses) is required unless specifically waived by the student’s adviser or director of the MPA program.

**Public Policy**

*Program is not currently accepting new applications.*

**College of Business**

**Information**

**Accreditation**

The College of Business’s graduate and undergraduate degree programs are accredited by AACSB-International. The Association to Advance Collegiate Schools of Business. AACSB-International is the premier accreditation agency for business schools.

**Mission Statement**

The vision of the University of Michigan-Dearborn’s College of Business is to be the college of choice for quality business education in the greater metropolitan Detroit area, with impact beyond Southeast Michigan.

The mission of the University of Michigan-Dearborn’s College of Business is to serve the diverse people of Southeast Michigan and beyond by providing innovative and experiential education that results in problem solving skills for responsibility and success in a dynamic marketplace.

Our mission is supported by:

- A faculty committed to teaching that supports student development and preparation for a wide range of business opportunities.
- Collaborative research that has sustained impact on the thoughts and activities of our academic and professional colleagues.
- Service by faculty and staff that supports an evolving curriculum and the needs of our students, personnel, community, and external partners

**Admission Policies and Process**

The College of Business accepts applications from those holding a bachelor degree or its equivalent from an accredited college or university. Students with all types of undergraduate and graduate degrees and fields of study are welcome to apply for admission.

**Mathematics Admission Prerequisites**

Quantitative skills are important and frequently used in graduate business courses. Applicants must demonstrate proficiency in mathematics by successful completion of courses through pre-calculus or finite mathematics. If an applicant’s university transcripts do not show satisfactory completion of pre-calculus, finite mathematics, or higher-level math courses (e.g. calculus), the burden will be on the applicant to explain and document that the applicant has math knowledge equivalent to pre-calculus or finite mathematics.
The following UM-Dearborn courses will satisfy the mathematics admission requirement: MATH 104 Pre-calculus: Management, Life, and Social Science, 4 credits, or MATH 105 Pre-calculus, 4 credits. The prerequisite for both courses is at least two years of high school Algebra, or MATH 090 Intermediate Algebra and one year of high school Geometry.

**GMAT/GRE Admission Prerequisite**

Applicants must submit official GMAT (Graduate Management Admission Test) or GRE (Graduate Records Examination) scores before admission is granted. GMAT or GRE scores older than five years will not be considered. GMAT and GRE Verbal and Quantitative scores will be heavily considered in the admission decision. Applicants are encouraged to take the GMAT or GRE test at the earliest possible date and request that score be reported to the University of Michigan-Dearborn. The GMAT and GRE websites (mba.com [http://www.mba.com] and ets.org/gre [http://www.ets.org/gre]) provide complete information about these tests.

Master of Science program applicants may request an exemption from the GMAT or GRE if they meet any of the following conditions:

- Have completed an undergraduate degree from an AACSB or ABET accredited program within the previous 5 years with a 3.2 GPA.
- Have previously earned a graduate degree in a field requiring significant analytical or quantitative work, such as business, economics, engineering, statistics, mathematics, physics, chemistry or biology.
- Have earned any of the following certifications: CAS, CFA, CFM, CPA, FRM, SOA, or have passed a state bar exam.

If the applicant has taken the GMAT or GRE within the five years prior to submitting the application for admission, the College of Business will consider those test scores regardless of whether the student qualifies to receive the test exemption.

The College of Business reserves the right to require the GMAT or GRE of any MS applicant, and often does so when additional information is required to make an admission decision.

All MBA applicants must submit valid GMAT or GRE test scores.

**Work Experience**

Work experience is not required for admission to the graduate programs in the College of Business. However, all applicants must submit a 1-2 page resume with their application materials listing education; any employment, internship, or similar types of experience; any professional affiliations, volunteer activities, or relevant honors and awards, together with the months and years of each activity. The resume is considered during the admission process.

**References**

At least one reference is required for admission. A form is included in the application for this purpose. The reference should come from a person who is familiar with the applicant’s academic accomplishments or job performance. The form should be submitted directly to the University by the evaluator.

**Presumption of Computer Application Skills**

The faculty expects every graduate student to be proficient in word processing and spreadsheets, including spreadsheet math and statistical functions. Before enrollment in College of Business graduate courses, students must have completed a college-level computer applications course, or they must have acquired equivalent expertise through training or work experience.

**Transcripts**

Applicants’ undergraduate and graduate records will be heavily considered in the admission decision. Transcripts will be examined not only for overall grade point average but also for trends of grades and particular scholastic capabilities.

An official academic transcript from each college and university attended, including the University of Michigan-Dearborn, must be submitted during the application process. All credentials and documents submitted become the property of the University. To be considered official, transcripts must come directly from one university to another. Transcripts cannot be accepted if sent by the student. When requesting transcripts from one of the three University of Michigan campuses (Ann Arbor, Dearborn, or Flint), inter-office copies are sufficient for admission consideration.

**Admission Criteria**

Students with all types of undergraduate and graduate degrees from all fields of study are welcome to apply for admission.

The College of Business conducts a holistic review of each application. There is no formula to define who will make a successful candidate, but the College is especially interested in strong academic performance, as evidenced on the applicants’ academic transcripts, and strong GMAT or GRE test scores. In addition, the College considers the statement of purpose, reference letter, and resume. Profiles of the most recent entering class, showing average GMAT scores and GPAs, can be found at umdearborn.edu/grad-admissions.

**Taking UM-Dearborn Undergraduate Courses to Fullfill Admission Prerequisites**

Please check the Schedule of Classes online at umdearborn.edu/registration for course availability each term. To register for admission prerequisite courses as a non-degree student (personal enrichment) prior to entry in a graduate program, contact the Undergraduate Admissions Office for admission information, 313-593#5100 or online at umdearborn.edu/futuresstudents. Please note that personal enrichment students are not eligible for financial aid. For further information and guidance please contact the College of Business Graduate Admissions Advisor at umd-gradbusiness@umich.edu or phone 313-593-5460.

Applicants deficient in one of the admission prerequisites may be considered for admission contingent upon their completing the appropriate course during their first term of enrollment in the graduate degree program.

**Application Deadlines**

The College of Business admits students in the fall (September), winter (January), and summer (May) terms. Applicants for full-time study should plan to enter in the fall term; full-time admission is subject to course availability in the winter and especially summer terms. Applications are reviewed on a rolling basis. Email notification is sent shortly after the decision. The application deadlines for domestic students are August 1 for fall admission, December 1 for winter admission, and April 1 for summer admission. Applications received after these deadlines are accepted on a space-available basis only.
Application Fee
A non-refundable fee must accompany every application for admission. Fees are subject to approval by the Regents of the University and may be changed at any time. The current fee is posted in the application instructions, which can be accessed at umdearborn.edu/cob/grad-admissions/.

Submission of Application Materials
Full application instructions, including links to the UM-Dearborn Graduate Application and Graduate Studies Office, can be found at umdearborn.edu/cob/grad-admissions/

Additional information can be found at:
Student Services Office
College of Business
University of Michigan-Dearborn
168 Fairlane Center South
19000 Hubbard Drive
Dearborn, MI 48126-2638
Telephone: 313-593-5460
Fax: 313-271-9838
Email: umd-gradbusiness@umich.edu

All credentials and documents submitted during the admission process become the property of the University. Originals or copies of application/admission documents are not released to the applicant or to any third party.

In addition, applicants should arrange to have scores on the GMAT or GRE (and TOEFL, when necessary) sent directly to the University.

Deferred Admission
Admission to a graduate program is valid for one year after the semester for which admission was granted. If an admitted applicant wishes to defer admission, written notification must be sent to the College of Business Graduate Office (umd-gradbusiness@umich.edu) before the start of the semester for which initial admission was granted. Students must meet admission and degree requirements in effect during the new semester of entry.

International Students
The College of Business welcomes applications from qualified international students.

Housing
Students should refer to the following website for housing information at umdearborn.edu/campus-life/housing.

Costs
Each international student or his/her sponsor(s) must submit a notarized Affidavit of Support. This form must indicate that the student has access to funds, including living expenses, equaling an amount stipulated by the Office of International Affairs. Refer to umdearborn.edu/international.

Transcripts
In addition to the instructions for domestic applicants, international applicants must also provide:

• Official documentation of all courses taken and grades received (transcripts/records) from each undergraduate and postgraduate institution attended. Transcripts/records should be issued in the original language and be accompanied by English translations prepared by the institution's authorized official, such as a registrar.
• Official certification of degrees and dates awarded, issued in the original language and accompanied by English translations prepared by the institution's authorized official, such as a registrar. Academic transcripts/records must have a seal and signature in ink from the institution's authorized official, such as a registrar or recorder.

All credentials and documents submitted become the property of the University.

Applications
In addition to the instructions for domestic applicants, international applicants must:

• Submit the Affidavit of Financial Support for International Students (available at umdearborn.edu/international) with supporting documentation. Recommendation for admission cannot be certified without this information.
• Submit official transcripts from all universities attended according to the directions listed in this section under the heading "Transcripts."
• Meet the minimum standards of the English proficiency requirement by taking either the TOEFL or the MELAB and submitting scores to the College of Business. See “English Language Requirements for Admission.”
• International students requiring an I-20 upon admission to the College must have a complete application file and the application fee must be paid by May 1 for fall admission, September 1 for winter admission, and January 1 for summer admission.

English Language Requirements
Since all instruction at the University is in English, international students must demonstrate proficiency in English comprehension, writing, grammar, and vocabulary. The University of Michigan-Dearborn does not offer intensive English language courses; therefore, students must be competent in English before being admitted to the University. The College of Business requires the following minimum test score requirements on ONE of the following tests for admission consideration:

• Internet Based Test TOEFL: 84
• Paper-Pencil TOEFL: 560
• Computer-Based TOEFL: 220
• MELAB: 80
• IELTS: 6.5

The College of Business recommends that applicants attend a TOEFL administration that includes the Test of Written English (TWE). Information about the TOEFL, MELAB and IELTS can be found at toefl.org (http://www.toefl.org), lsa.umich.edu/eli (http://www.lsa.umich.edu/eli), and ielts.org (http://www.ielts.org).

Guest Students and Post-Graduate Students
Students currently enrolled in a graduate program at another university (guest students) and persons who have already earned a graduate degree (post-graduate students) may request permission to enroll in College of Business graduate courses at UM-D as a guest/post-graduate student. Interested students should review the course descriptions, paying particular attention to prerequisites, and determine the course, or courses, they may wish to elect on the UM-D campus. Before permission
to register is granted, it will be necessary to provide the College of Business Graduate Office with the following information:

- Completed guest or post-graduate application form and application fee; the application and application fee is good for one term. When a guest or post-graduate student requests enrollment for two consecutive terms at the time of initial application, the application fee will be waived for the second term of enrollment. The second term of enrollment is contingent on the guest or post-graduate student earning a grade of B or better in each course elected at UM-D. The guest/post-graduate application form is on the College of Business website or may be requested at umd-gradbusiness@umich.edu or by telephone to the College of Business Graduate Office at 313-593-5460;
- Official transcripts, sent directly to the College of Business Graduate Office from the student’s undergraduate degree-granting institution, and official transcripts for all graduate coursework completed or in progress; and
- Guest students only must provide written permission from their home institution verifying enrollment in a graduate program and granting permission to elect the course (or courses) at the University of Michigan-Dearborn.

Upon receipt of the above information, the Graduate Program Director will review the documentation and if approved, the student will be notified of guest/post-graduate registration procedures. Guest and post-graduate students are permitted to elect a maximum of nine semester hours of credit. Approved guest and post-graduate registration is on a space-availability basis. Credits earned as a guest or post-graduate student do not count as credit toward degree in the College of Business Graduate Programs.

**Course Descriptions**

The courses described here are those regularly offered by the College. All courses give three hours of credit, except as otherwise specified by the numeral(s) in parentheses. Check with your Graduate Program Advisor at umd-cobgradadvisor@umich.edu for applicability of course offerings to your degree program. Students are strongly encouraged to plan their program by using the Course Planning Guide at umdearborn.edu/cob/graduate-programs/advising-and-registration and working with their program advisor.

Students enrolled in graduate degree programs from other UM-Dearborn colleges may not elect more than 12 graduate credits offered by the College of Business, unless the College of Business credits are required as part of the student’s graduate degree program.

**Course Prerequisites**

The faculty determined the appropriate prerequisites for each course. These prerequisites exist to make sure the student has the specific background necessary not only to minimally complete the course, but also to assure a broad enough background so the student fully benefits from the course. Students must observe all prerequisites in course planning. The registration system will not allow students to register for courses without the course prerequisites successfully completed. Students with previous coursework or experience may petition the College of Business for a prerequisite override. Forms and instructions for this process are available at umdearborn.edu/cob/graduate-programs/advising-and-registration or from the College of Business Student Services Office, 168 FCS. You must allow 10 working days for your request to be reviewed. Students that are registered for a course without the prerequisites or an approved prerequisite override will be administratively withdrawn from the course.

**Degree Program**

The College of Business offers the following master degree programs, each accredited by AACSB-International. Programs indicated with an asterisk symbol (*) have an online option. Programs indicated with a double asterisk (**) are also offered as evening programs. Programs indicated with a plus (+) are offered as both evening and online programs.

**Master’s Programs**

- Accounting (MSA) (p. 494)**
- Business Administration (MBA) (p. 492)+
- Business Analytics (MS) (p. 497)**
- Finance (MSF) (p. 498)+
- Information Systems (MS) (p. 499)**
- Supply Chain Management (MS) (p. 501)**

**Dual Degree Programs**

- Master of Business Administration (MBA) and Master of Science in Finance (MS) (p. 503)
- Master of Business Administration (MBA) and Master of Science in Information Systems (MS) (p. 507)
- Master of Business Administration (MBA) and Master of Science in Supply Chain Management (MS) (p. 508)
- Master of Science in Accounting (MSA) and Master of Science in Finance (MSF) (p. 509) (Student-Initiated)
- Master of Business Administration (MBA) and Master of Science in Engineering in Industrial and Systems Engineering (MSE) (p. 510)
- Master of Business Administration (MBA) and Master of Health Services Administration (MHSA) (p. 513) (Student-Initiated)

**Administration**

Raju Balakrishnan, PhD, Dean
Claudia Kocher, PhD, Associate Dean
Michael Kamen, PhD, Academic Program Director, Graduate Programs
Susan Wells, MPA, Academic Program Director, Undergraduate Programs

**Chairs and Directors**

Lee Redding, Chair, Associate Professor, Accounting and Finance
Karen S. Strandholm, Chair, Associate Professor, Management Studies

**Internship Career Management Center**

Rita Agius, MS, Relationship Manager
Michael Callahan, MBA, Program Director
Arlyan Dailey, Relationship Manager
Pam Morris, Co-operative Internship Coordinator
Tuere Wheeler, MBA, Employee Relationship Manager
Professors Emeriti
Bayou, Mohamed E., PhD, Professor Emeritus of Accounting
Callahan, Thomas J., PhD, Associate Professor Emeritus of Organizational Behavior
Chou, Yu-Min, PhD, Professor Emeritus of Business Economics and Finance
Cowan, Ross D., MF, Associate Professor Emeritus of Operations Management
Culp, William H., PhD, CPA, Professor Emeritus of Business Administration
Czarnecki, Richard E., PhD, CPA, Professor Emeritus of Business Administration
Foran, Michael, PhD, Professor Emeritus of Accounting
Fricke, Cedric V., PhD, Professor Emeritus of Business Administration
Krachenberg, A. Richard, PhD, Professor Emeritus of Marketing
Lev, Benjamin, PhD, Professor Emeritus of Operations Research
Lyons, Thomas F., PhD, Professor Emeritus of Business Administration
Martin, William R.D., MBA, Professor Emeritus of Business Administration
Padmanabhan, K.H., PhD, Associate Professor of Marketing
Steel, Robert, PhD, Professor Emeritus of Organizational Behavior
Streeter, Victor J., PhD, Associate Professor Emeritus of Management Information Systems
Waissi, Gary, PhD, Professor Emeritus of Operations Research

Faculty
Department of Accounting and Finance
Baker, Susan, MBA, University of Michigan, Lecturer
Blatz Jr., Robert, JD, LLM, New York University School of Law, Professor
Broman, Amy, PhD, JD, University of Michigan, Lecturer
Bublitz, Bruce, PhD, CPA, University of Illinois, Professor
Cai, Kelly N., PhD, University of Houston, Professor
Graybeal, Patty, PhD, Virginia Tech University, Lecturer
Green, Brian P., PhD, CPA, Kent State University, Professor
Hayes, Matthew, PhD, Arizona State University, Assistant Professor
Killey, Michael N., PhD, Florida Atlantic University, Assistant Professor
Kubelsky, Kevin, PhD, University of California, Associate Professor
Kocher, Claudia, PhD, Michigan State University, Associate Professor
Miranda, Maria, PhD, University of New Orleans, Lecturer
Philipich, Kirk, DBA, Indiana University, Associate Professor
Redding, Lee, PhD, Princeton University, Associate Professor
Singh, Vivek, PhD, Virginia Technological University, Professor
Valero, Magali, PhD, Arizona State University, Associate Professor
Vlachos, George, MA, State University of New York, Lecturer
Xie, Alice, PhD, Syracuse University, Associate Professor

Department of Management Studies
Ahuvia, Aaron, PhD, Northwestern University, Professor
Balakrishnan, Raju, PhD, Purdue University, Professor
Beatty, Joy, PhD, Boston College, Associate Professor
Chandra, Charu, PhD, Arizona State University, Professor
Chen, Yi-Su, PhD, University of Minnesota, Associate Professor
Drake, Jeanette, PhD, Bowling Green State University, Lecturer
Freeman, Lee, PhD, Indiana University, Associate Professor
Fu, Wayne, PhD, Georgia Institute of Technology, Assistant Professor
Guo, Yi, PhD, Texas A M, Associate Professor
Hartge, Timothy, MA, EdD, University of Michigan-Dearborn, Lecturer
He, Jun, PhD, University of Pittsburgh, Associate Professor
Holowicki, Gerald, MS, Eastern Michigan University, Lecturer
Izberk-Bilgin, Elif, PhD, University of Illinois at Chicago, Associate Professor
Kao, Ta-Wei (Daniel), PhD, The State University of New York, Assistant Professor
Kaufman, David, PhD, University of Michigan, Assistant Professor
Keyes, Patrick, MBA, Central Michigan University, Lecturer
Klein, Barbara D., PhD, University of Minnesota, Professor
Kumar, Kamalesh, PhD, University of North Texas, Professor
Lee, Hei Wai, PhD, University of Illinois at Urbana-Champaign, Professor
Lee, Junghyun (Jessie), PhD, George Washington University, Assistant Professor
Liu, Zhixin, PhD, The Ohio State University, Associate Professor
Majeske, Katherine, MBA, University of Michigan, Lecturer
Molloy, Janice, PhD, The Ohio State University, Associate Professor
Rauschnabel, Philipp, PhD, University of Bamberg Germany, Assistant Professor
Ro, Young, PhD, University of Michigan, Professor
Samfilippo, Chris, MBA, Wayne State University, Lecturer
Scott, Crystal, PhD, Pennsylvania State University, Associate Professor
Smrt, Diana, PhD, Southern Illinois University, Lecturer
Statt, Anne-Louise, PhD, Princeton University, Lecturer
Strandholm, Karen S., JD, PhD, Indiana University, Associate Professor
Su, Hung-Chung, PhD, University of Minnesota, Assistant Professor
Urbaczewski, Lise, MS, Eastern Michigan University, Lecturer
Van Hemert, Michael, JD, University of Michigan, Lecturer
Wimble, Matt, PhD, Michigan State University, Assistant Professor
Yoder, Michele, PhD, University of Wisconsin-Madison, Assistant Professor

Academic Policies and General Information

Graduate Internship Program
The internship program is an optional academic program that integrates classroom work and practical experience with cooperating businesses. Up to three non-resident academic credits are granted for the internship. Second and third internships will be offered for additive credit only. A maximum of 3 credit hours of internship course work from BI 500, BI 505 or BI 560 may be applied toward graduation requirements upon approval from the Program Advisor.

Students interested in Graduate Internships should schedule an appointment with the Internship Director to go over program policies and sign the Student Internship Contract. The Internship Office coordinates resume dissemination, interview scheduling and job offers.

Students must register for the internship before starting work. As part of the internship, students are required to write a report at the end of the semester and participate in the evaluation process. Students may elect two courses along with the internship with the permission of the Internship Director.

Master of Science in Accounting students do not need to have completed 6 credit hours and can apply for an internship in their first term of entry.

Degree Requirements
The following degree requirements are required of all graduate programs offered by the College of Business.

- Minimum average grade of B (3.0)
  A cumulative average grade of B or higher will be required in all graduate courses taken for credit and applied to the credit hour requirements.

- Diploma Application
  To be recommended for the degree, the student must file a formal diploma application, which is available at the Registrar’s Office website (umdearborn.edu/rr_apply-graduate/) or in person at the Registrar’s Office, by the published deadline.

- Completion of required courses and program requirements
  See the requirements for each degree program, above.

Course Waivers and Exemptions
Waivers, where available, reduce the number of credits required to complete a degree. Exemptions, where available, must be replaced with other advisor approved, graduate-level coursework as noted above in this Catalog. See the degree program descriptions above for available course waivers and exemptions in each program.

The Graduate Program Office, in consultation with the faculty and academic department chairs, determines all course waivers and exemptions at the time of admission. Waivers and exemptions will be considered on the basis of previous equivalent undergraduate or graduate coursework as reflected on official transcripts. Students may enroll in courses that have been waived or exempted, although completion of waived courses will result in a loss of the respective course waiver. Once admitted to a graduate program in the College of Business, students must take graduate level courses or courses approved for graduate credit.

In some cases, students may be advised to petition for a waiver or exemption and provide additional course information before the waiver/exemption decision is made.

Admitted applicants may request a course waiver or exemption based on the above policy by completing a petition form. The following supporting documentation must accompany the petition: copy of the course description from the college catalogue, a copy of the course syllabus, and a copy of the title page and table of contents of the textbook used in the course. The petition form is available at umdearborn.edu/cob/graduate-programs/advising-and-registration.

Some courses may also be waived by proficiency demonstrated by examination. Admitted candidates who wish to waive courses in this manner must petition the Graduate Office to take a proficiency exam and must provide reasonable justification for the request. Proficiency exams are generally administered two to three times per year and must be taken within one year of initial enrollment. Students receiving a grade of B or better on the exam will be waived from the applicable course. Additional information regarding proficiency examinations is available to admitted students in the College of Business Student Services Office, 168 Fairlane Center South.

Minimum Credits-in-Residence
A maximum total of twelve graduate credits may be applied to any College of Business graduate degree from any combination of:

- Approved graduate level offerings (500-level and above) offered by another UM-Dearborn academic unit: maximum three credits.
- Graduate transfer credit from an AACSB accredited program: maximum six credits.
- Graduate Business Internships (BI 500 or BI 505 or BI 560): maximum three credits.
- College of Business graduate credits earned through exchanges with international partner universities: maximum twelve credits.

Transfer Credit
A maximum of 6 graduate semester credits may be transferred to a student’s academic record. Transfer credits appear on the UM-Dearborn transcript, but the associated grades received for these credits do not appear and are not computed in the student’s cumulative GPA. Credits may be transferred only for approved graduate-level courses if all of the following conditions are met:

- The student must submit a written petition requesting transfer credit with proper documentation attached. The documentation must include a description of the course from the college catalogue, the syllabus for the course, and a copy of the title page and table of contents for each textbook used. Usually, the course must have
been completed in an AACSB-accredited business program. Petition forms for admitted students are available on the College of Business website or from the Student Services Office, 168 FCS. Completed petitions are submitted by the student to the Student Services Office. The petition is then reviewed by the appropriate faculty member, department chairperson, and Graduate Program Director. A written response to the student’s petition is sent to the student.

- An official transcript must be received by the College of Business Student Services Office from the institution offering the courses.

Courses may not be transferred for credit if:

- They were already applied toward a degree or certificate; or
- They were completed more than five years before enrollment in the College of Business graduate program; or
- The earned course grade was lower than a B.

Financial Aid
Refer to umdearborn.edu/financialaid.

Academic Regulations
All students enrolled in the graduate program are subject to the University regulations concerning student affairs, conduct and discipline. Additional regulations, or variations, which apply specifically to graduate degree candidates, are given in the College of Business section of this Catalog.

Grading System
The following 4.0 grading system is used by the College of Business Graduate Programs:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
</tr>
<tr>
<td>E</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Grade point averages are computed by dividing the honor points a student has earned by the hours elected. Grades associated with waivers, exemptions, or transfer credit from colleges, schools, or units other than UM-Dearborn are neither recorded nor used in computing grade point averages of students enrolled in the College of Business.

No credit toward satisfaction of degree requirements is granted for courses in which grades below C- are received. Courses elected under the pass-fail option are not considered in computing grade average.

Incomplete Coursework and Absence from Financial Examinations
Refer to umdearborn.edu/rr_records.

Academic Standing of Students
To be in good standing, a student must have an overall grade point average of 3.0 or better on a 4.0 scale. At the end of each term, the College reviews the standing of each student with a scholastic average below 3.0. Those whose grade point average (GPA) for the term falls below 3.0 will receive a warning regardless of the cumulative average.

If a student’s cumulative GPA is below a 3.0 upon reaching a total of 6 credit hours, or at any point thereafter, the student will be placed on academic probation. Students on academic probation are required to meet with their academic advisor. The student may be allowed to continue on probation as long as the student is making progress toward degree and earning above a 3.0 term GPA. Students not progressing toward degree will be required to withdraw from the program. Students required to withdraw may petition to be readmitted.

Repeating Courses
College of Business graduate students may repeat courses in which they receive a grade of C+ or lower. Grades and honor points for the original course and the repeated course both appear on the student’s transcript, and both are used in computing the student’s grade point average. However, additional credit toward program will not be awarded for repeated courses in which the original grade was C+, C, or C-. College of Business graduate students may not repeat courses in which they have received grades of B- or higher. Students should check with their academic advisor to verify specific program grading policies.

Pass-Fail Option
Graduate students enrolled in the College of Business may elect courses with the pass-fail grading option subject to the following conditions:

- This option may not be elected by students on academic probation.
- Courses to be taken under this option must be specified at the time of registration or within the regular period for adding courses.
- Required MBA core, AIM or concentration courses may not be elected pass-fail. Only general elective courses that are not used toward an MBA concentration may be taken pass-fail. Courses used to satisfy MS (Accounting or Business Analytics or Finance or Information Systems or Supply Chain Management) degree requirements cannot be elected pass-fail.
- In a course offered exclusively on a pass-fail basis, a passing grade will be recorded as S (and not used in computing a student’s grade point average), and a failing grade will be recorded as E (and used in computing grade point average). In a course offered with a pass-fail option, a reported grade of B- or above will be recorded as P; and a reported grade of below B- will be recorded as F. (Whether a P or F is recorded, the grade is not used in computing a student’s grade point average.)
- A student may elect at most two courses (6 credit hours) on a pass-fail basis, whether at the student’s option or not (excluding internship courses).
- Courses that are elected on a pass-fail basis in a manner that does not conform to items 1) through 5) will not accrue toward the degree requirements of the student.

Change in Course Election
Refer to umdearborn.edu/rr_registration.

Petitions for Academic Action
Each request to the faculty of the College of Business for special academic action, including credits, requirements, academic standing,
and other matters, should be entered on the appropriate petition form available at umdearborn.edu/cob/graduate-programs/advising-and-registration, then forwarded with appropriate documentation to the College of Business Graduate Program Office for review by the faculty serving on the Academic Standards Committee. A written response, indicating the Committee’s decision or action, will be sent to the student’s UM-Dearborn email account.

Student Academic Conduct
A student in the College of Business or any student enrolled in a College of Business course will not engage in academic misconduct, including, but not limited to, plagiarism, cheating, fabrication, aiding and abetting dishonesty or falsification of records and official documents as defined in the Statement of Student Rights and Code of Student Conduct. Definitions of prohibited conduct, sanctions, procedures for applying sanctions, and appellate procedures are specifically set out in the Statement. Copies of the Statement are available in the College of Business Office.

Student Personal Conduct
Any conduct that can be the grounds for civil or criminal lawsuit shall be subject to sanctions by the College of Business.

Right of Appeal
Refer to this topic on the University’s website or consult with your academic advisor.

Time Limits for Completing Degree Requirements
Requirements for the degree must be completed within seven (7) years of first enrollment. Students who desire more time must submit, in a written petition to the Academic Standards Committee, reasons for the request and specific plans for the completion of the degree program.

Maintenance of Active Degree-Seeking Status and Readmission
Admission to the college is granted for a specific term. Students who are admitted but do not enroll in the appointed term, and who have not notified the College of their desire to exercise the deferred admission option, must reapply for admission. Full-time or part-time students lose active degree candidacy if at least one course is not completed within a 12-month period. Readmitted students must comply with current degree requirements. Admission to the College is competitive, and applications for readmission will be decided on the standard for the term in which the former student wishes to enroll.

Application for the Degree
Each candidate for a degree must file an Application for Diploma in the Registrar’s Office. However, the student should check Enrollment Service’s Applying to Graduate page at umdearborn.edu/rr_apply-graduate/ for the dates specific to each term. Applications will not be accepted after the published deadlines. If an application for a diploma was filed for a previous graduation period in which the student did not graduate, a new application is necessary. Degrees are granted at the end of the fall, winter, and summer terms, even though commencement exercises are held only at the end of the winter and fall terms.

Advising
Responsibility for planning the specific content of the academic program rests with the student. A thorough familiarity and understanding of the regulations contained in the Graduate Programs description material and/or the Catalog are essential for sound planning. All students are encouraged to take advantage of academic advising when they desire it in choosing courses. The College of Business maintains office hours Monday through Friday, and support personnel are available to answer student inquiries regarding course requirements, academic status, course prerequisites, and the like. An advance appointment is suggested for advising discussions. In addition, faculty advice is available and should be sought in planning programs. Members of the faculty are available during their office hours throughout the term. Students are invited to talk with them during faculty office hours or at a time arranged in advance. Students are strongly encouraged to plan their program by utilizing the Course Planning Guide at umdearborn.edu/cob/graduate-programs/advising-and-registration and working with their program advisor. The Course Planning Guide is subject to change.

Academic Honors
Achievement of various kinds is recognized both prior to graduation and in the granting of degrees.

Dean's Honor Roll
Each fall and winter term the dean posts an honor roll recognizing those students who have taken nine hours or more, and have obtained a B+ (3.0) or better average.

Beta Gamma Sigma
Beta Gamma Sigma is the national honor society for business schools accredited by AACSB-The International Association for Management Education. Membership in Beta Gamma Sigma is one of the highest scholastic honors that a graduate business student can achieve based on outstanding scholastic achievement as measured by overall grade point average. Invitation for membership to Beta Gamma Sigma is extended to College of Business students that are in the top twenty percent of their graduation class.

Graduation with Distinction
Students who have maintained a 3.70-3.89 cumulative grade point average will graduate "With Distinction," and it will be recorded on their transcript.

Graduation with High Distinction
Students who have maintained a 3.90 or above cumulative grade point average will graduate "With High Distinction," and it will be recorded on their transcript.

Business Administration
The MBA, featuring courses in Applied Integrated Management, provides students with the integrated perspective required to solve today’s complex business problems. The program may be completed in 36-48 credit hours, depending on core course waivers earned (see notes at end of MBA Curriculum, below).

The program offers expert faculty, expansive opportunities for networking, and the flexibility of evening and on-line courses, all from a highly-ranked program. The degree is open to students of all undergraduate majors and all levels of work experience. Students may complete the program on campus, on-line, or any combination of the two. (Concentrations are optional, and most require a campus presence.) Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The
program usually can be completed within 12-24 months of full-time study, depending on core course waivers earned.

Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MBA may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

**MBA Goals and Objectives**

- **Goal 1:** Students will have an understanding of the core business disciplines and be able to apply this knowledge to global business situations.
  - Objective 1: Students will demonstrate knowledge of disciplinary concepts, terminology, models, and perspectives.
  - Objective 2: Students will identify business problems and apply appropriate solutions (problem-finding/problem-solving).
  - Objective 3: Students will integrate knowledge across disciplinary areas (integrative thinking).
  - Objective 4: Students will apply knowledge in a global environment.

- **Goal 2:** Students will be effective communicators.
  - Objective 5: Students will demonstrate an ability to effectively communicate in a manner that is typically required of a business professional.

- **Goal 3:** Students will appreciate the importance of ethical/corporate social responsibility principles.
  - Objective 6: Students will identify and explain alternative approaches to ethical/corporate social responsibility issues.

**MBA Admission Prerequisites**

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

**MBA Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
<tr>
<td>OM 521</td>
<td>Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**International AIM Course:**

Select one course from:

- BE 583 Global Econ: Crisis & Growth
- FIN 655 International Financial Mgt
- MKT 622 Global Marketing

**MBA Electives or Optional Concentration**

Complete at least one of the available concentrations (see below) or choose at least three elective courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 616</td>
<td>Corp Acts &amp; Reacts &amp; Firm Val</td>
<td>3</td>
</tr>
<tr>
<td>BA 605</td>
<td>Mgrl Dec Making</td>
<td>3</td>
</tr>
<tr>
<td>BPS 585</td>
<td>Managing Strat Innov &amp; Change</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

48

1. Up to three graduate credits may be elected from units other than the College of Business. Elective courses must be approved by the Graduate Program Advisor in advance of course election.

**MBA Breadth Requirements (3, 4, 5 Rule)**

- Complete AIM courses in at least 3 different disciplines
- Complete more than 4 AIM, Concentration, and Elective courses (12 credits) in any one discipline
- Complete graduate business courses in at least 5 different disciplines.

No single course may be counted toward more than one MBA requirement or concentration.

**MBA Communication Requirement**

Two, 4-hour workshops in Business Writing and Business Presentation skills are required for the MBA degree.

**MBA Concentrations**

Concentrations are optional, and students may earn more than one. Some concentrations are available online; others require campus enrollment. Concentrations are awarded at the time of graduation.

**Accounting**

Available on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 601</td>
<td>Information Tech Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC 603</td>
<td>Controllership</td>
<td>3</td>
</tr>
<tr>
<td>ACC 604</td>
<td>Auditing &amp; Forensic Examination</td>
<td>3</td>
</tr>
<tr>
<td>ACC 605</td>
<td>International Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours

9

**Finance**

Available online and on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td>3</td>
</tr>
</tbody>
</table>
**Accounting**

The Master of Science in Accounting provides the specialized training for careers in corporate accounting, controllership, and public accounting. Students in the program can qualify to receive a 100% reimbursement of the cost of completing CPA exam preparation through CPAexcel®. The degree is open to students from all undergraduate majors.

Most courses in the program are offered on campus; a few are occasionally offered on-line. You may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The program usually can be completed within 12 months of full-time study.

Admission is rolling, and you may begin the program in September or January. May admission is also usually possible for part-time students.

Students eligible to pursue the Accounting 4+1 option may count 3 specified courses/9 credits in the graduate program toward their undergraduate accounting major. All other University of Michigan-Dearborn students who have been admitted to the MS-Accounting may take up to 6 graduate credits during the final semester of their undergraduate program. Such students must successfully complete their undergraduate degree before taking any additional graduate-level courses.
**MS in Accounting Program Goals and Objectives**

- **Goal:** MS in Accounting students will be able to integrate theory and applications in a wide variety of business situations. MS in Accounting students will:
  - **Objective 1:** Be able to effectively communicate ideas orally, in writing, and using computer technologies.
  - **Objective 2:** Integrate multiple sources of information to formulate solutions to complex business issues.
  - **Objective 3:** Apply standards and regulations that affect multinational businesses.
  - **Objective 4:** Apply standards of practice to business situations.

**MS in Accounting Admission Prerequisites**

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

**MS in Accounting Curriculum**

Previous equivalent undergraduate or graduate coursework may qualify students to exempt any of the core courses except ACC 555. Exempt core courses are replaced with additional electives.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>ACC 514</td>
<td>Financial Reporting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 516</td>
<td>Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 555</td>
<td>Cost Management</td>
<td>3</td>
</tr>
<tr>
<td>ACC 557</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC 560</td>
<td>Intro Federal Income Taxation</td>
<td>3</td>
</tr>
<tr>
<td>ACC 580</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select three courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 539</td>
<td>Not-for-Profit Accounting</td>
<td>2</td>
</tr>
<tr>
<td>ACC 601</td>
<td>Information Tech Auditing</td>
<td>2</td>
</tr>
<tr>
<td>ACC 603</td>
<td>Controllership</td>
<td>2</td>
</tr>
<tr>
<td>ACC 604</td>
<td>Auditing&amp;Forensic Examination</td>
<td></td>
</tr>
<tr>
<td>ACC 605</td>
<td>International Accounting</td>
<td></td>
</tr>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td></td>
</tr>
<tr>
<td>ACC 614</td>
<td>Advanced Accounting II</td>
<td>2</td>
</tr>
<tr>
<td>ACC 657</td>
<td>Adv Auditing &amp; Assurance Serv</td>
<td>2</td>
</tr>
<tr>
<td>ACC 660</td>
<td>Advanced Federal Income Tax</td>
<td>2</td>
</tr>
<tr>
<td>LE 510</td>
<td>Commercial Transactions</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credit Hours 30

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree. Transfer credit is granted at the discretion of the program faculty.

**Dual Degree, MS Accounting/MS Finance (Student-Initiated)**

The MS in Accounting/MS in Finance dual degree program combines specialized training for careers in corporate accounting, controllership, and public accounting with specialized training required for success in the financial professions. Students select either the corporate finance or the investments concentration in the MS-Finance. Students in the program can qualify to receive a 100% reimbursement of the cost of completing CPA exam preparation through CPAexcel®. The program is open to students with strong quantitative and analytical skills, regardless of their undergraduate major.

The program allows students to receive both the MS in Accounting and the MS in Finance simultaneously upon completion of 51-54 credit hours, depending on which MSF concentration is selected.

Students may enroll on a full- or part-time basis. All courses in the program are offered on campus; many are also available on-line. Course offerings are greatest during the fall and winter semesters, and the program usually can be completed within 12 months of full-time study.

Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

**MS in Accounting/MS in Finance Admission Prerequisites**

- Mathematics admission prerequisite. Calculus is not required for admission. However, applicants who wish to pursue careers in investments or risk management, as well as those who wish to earn Chartered Financial Analyst (CFA) credentials, are strongly recommended to satisfy the Mathematics admission requirement with a college level Calculus course. Also, Calculus is a course prerequisite to FIN 656, an optional course in the MSF Investments concentration. Students who wish to take this course must first complete a college level Calculus course with a grade of "C" or better.
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

**MS in Accounting/MS in Finance Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

**MSF Foundation Courses**
Required:
BE 530 Econ Analysis: Firm & Consumer  
DS 520 Applied Statistical Modeling  
FIN 531 Fin Fundament & Value Creation  

MSF Concentration
Select one of the following MSF concentrations:  
18-21

MSF Concentrations

MSF Corporate Finance

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN 650</td>
<td>Corporate Valuation &amp; Strategy</td>
<td>3</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td>3</td>
</tr>
</tbody>
</table>

MSF Accounting Electives:
Select two of the following:  
1
- ACC 514 Financial Reporting
- ACC 516 Advanced Accounting
- ACC 555 Cost Management
- ACC 560 Intro Federal Income Taxation
- ACC 601 Information Tech Auditing
- ACC 603 Controllership
- ACC 608 Financial Statement Analysis
- ACC 660 Advanced Federal Income Tax

MSF General Electives:
Select two of the following:  
6
- BE 583 Global Econ: Crisis & Growth
- FIN 651 Invstmnt Proc, Analysis & Mgmt
- FIN 654 Financial Intermediation
- FIN 655 International Financial Mgt
- BA 690 Graduate Research
- BI 500 Business Internship

At most one of the following:  
- DS 630 Applied Forecasting
- DS 631 Decision Analysis
- DS 632 System Simulation

At least one of which must be ACC 514, ACC 555 or ACC 608.

MSF Investments

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>ACC 514</td>
<td>Financial Reporting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 516</td>
<td>Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 555</td>
<td>Cost Management</td>
<td>3</td>
</tr>
<tr>
<td>ACC 557</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC 560</td>
<td>Intro Federal Income Taxation</td>
<td>3</td>
</tr>
<tr>
<td>ACC 580</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

MSA Core

Select two of the following:  
6
- ACC 539 Not-for-Profit Accounting
- ACC 601 Information Tech Auditing
- ACC 603 Controllership
- ACC 604 Auditing & Forensic Examination
- ACC 605 International Accounting
- ACC 608 Financial Statement Analysis
- ACC 614 Advanced Accounting II
- ACC 657 Adv Auditing & Assurance Serv
- ACC 660 Advanced Federal Income Tax
- LE 510 Commercial Transactions

Total Credit Hours  
51-54

2 Simultaneous credit toward the BBA Accounting major and MSA for students admitted to the Accounting 4+1 program.
3 Recommended for students who intend to take the CPA exam.

General MSF Requirement
Complete at least 15 BE and FIN credits, excluding BE 530 and FIN 531.

MSF Foundation Course Exemptions

Previous equivalent undergraduate or graduate coursework may qualify students to exempt any of the foundation courses. Students must replace exempt MSF foundation courses with additional courses within their MSF concentration.

MSA Core Course Exemptions

Previous equivalent undergraduate or graduate coursework may qualify students to exempt any of the core courses except ACC 555. Exempt core courses are replaced with additional MSA electives.
Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Previous coursework deemed substantially similar to BE 530, DS 520 or FIN 531 may qualify to exempt students from these MSF foundation courses. Students must replace exempt MSF foundation courses with additional courses within their MSF concentration.

Regardless of exemption credits granted, students must earn at least 51 credits in the dual-degree program if completing the MSF Corporate Finance concentration, or at least 54 credits if completing the MSF Investments concentration.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions and transfer credit are granted at the discretion of the program faculty.

**Business Analytics**

The Master of Science in Business Analytics trains students to create business strategies using data and statistics. Professionals in this rapidly expanding field use algorithms and formulas to uncover patterns and trends in aggregate data, then apply that knowledge to real-world business problems.

The program offers expert faculty and expansive opportunities for networking. The degree is open to students with strong quantitative and analytical skills, regardless of their undergraduate major. The program includes a large number of courses involving statistical analysis.

All courses in the program are offered on campus; a few are also occasionally available on-line. Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The program usually can be completed within 12 months of full-time study.

Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MS-Business Analytics may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

**MS-Business Analytics Program Goals and Objectives**

- **Objective 1:** Students will evaluate business analytics approaches.
- **Objective 2:** Students will evaluate relevant business analytics tools and techniques.
- **Objective 3:** Students will formulate business analytics problems.
- **Objective 4:** Students will synthesize relevant business analytics information.
- **Objective 5:** Students will evaluate business analytics solution alternatives.

**MS-Business Analytics Admission Prerequisites**

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

**MS-Business Analytics Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>DS 570</td>
<td>Management Science</td>
<td>3</td>
</tr>
<tr>
<td>DS 630</td>
<td>Applied Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>DS 631</td>
<td>Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>DS 632</td>
<td>System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>DS 633</td>
<td>Data Mining for Business Appl</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentration**

Select one of the following concentrations

| Total Credit Hours | 12 |

**Financial Analytics**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info ¹</td>
<td>1</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer ¹</td>
<td>1</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td></td>
</tr>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td></td>
</tr>
<tr>
<td>FIN 650</td>
<td>Corporate Valuation &amp; Strategy</td>
<td></td>
</tr>
<tr>
<td>FIN 651</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td></td>
</tr>
<tr>
<td>FIN 653</td>
<td>Topics/Investments &amp; Cap Mkts</td>
<td></td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
<tr>
<td>BA 690</td>
<td>Graduate Research</td>
<td></td>
</tr>
<tr>
<td>BA 691</td>
<td>Graduate Seminar</td>
<td></td>
</tr>
</tbody>
</table>

| Total Credit Hours | 12 |

¹ Students may elect either ACC 505 or BE 530 as credit toward the Financial Analytics concentration but not both.

**Informational Management and Coordination Analytics**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 641</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 644</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select three courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 575</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 642</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Master of Science in Finance prepares students for success in the financial professions. Students elect either the corporate finance or the investments concentration. The program is open to students with strong quantitative and analytical skills, regardless of their undergraduate major.

Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The program usually can be completed within 12 months of full-time study. Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MS-Finance may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

**MS in Finance Program Goals and Objectives**

- **Goal 1:** Our students will demonstrate analytical skills in solving financial problems.
  - Objective 1a: Students will analyze and manage risk in a global setting.
  - Objective 1b: Students will estimate the value of real or financial assets.
  - Objective 1c: Students will assess the effect of strategic financial policies on firm cash flows.

- **Goal 2:** Our students will be knowledgeable about ethical issues in finance.
  - Objective: Students will identify ethical perspectives on the social responsibilities of a finance professional.

- **Goal 3:** Our students will be persuasive and/or informative communicators.
  - Objective: Students will be able to convey finance knowledge through effective communication.

**MS in Finance Admission Prerequisites**

- Mathematics admission prerequisite. Calculus is not required for admission to the MS in Finance. However, applicants who wish to pursue careers in investments or risk management, as well as those who wish to earn Chartered Financial Analysts (CFA) credentials, are strongly recommended to satisfy the Mathematics admission requirement with a college level Calculus course. Also, Calculus is a course prerequisite to FIN 656, an optional course in the Investments concentration. Students who wish to take this course must first complete a college level Calculus course with a grade of “C” or better.
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

**MS in Finance Curriculum**

**Foundation Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
</tbody>
</table>

Exemptions and transfer credit are granted at the discretion of the program faculty.
Concentration
Select one of the following concentrations: 21-30
Total Credit Hours 30-33

Concentrations
Corporate Finance

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN 650</td>
<td>Corporate Valuation &amp; Strategy</td>
<td>3</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Accounting Electives: 6

- ACC 514 - Financial Reporting
- ACC 516 - Advanced Accounting
- ACC 555 - Cost Management
- ACC 560 - Intro Federal Income Taxation
- ACC 601 - Information Tech Auditing
- ACC 603 - Controllership
- ACC 608 - Financial Statement Analysis
- ACC 660 - Advanced Federal Income Tax

General Electives: 6-15

- BE 583 - Global Econ: Crisis & Growth
- FIN 651 - Invstmnt Proc, Analysis & Mgmt
- FIN 654 - Financial Intermediation
- FIN 655 - International Financial Mgt
- BA 690 - Graduate Research
- BI 500 - Business Internship

At most one of the following:
- DS 630 - Applied Forecasting
- DS 631 - Decision Analysis
- DS 632 - System Simulation

Investments

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FIN 651</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN 653</td>
<td>Topics/Investments &amp; Cap Mkts</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives: 9-18

- BE 583 - Global Econ: Crisis & Growth
- FIN 581 - Topics in Corporate Finance
- FIN 654 - Financial Intermediation
- FIN 655 - International Financial Mgt
- FIN 656 - Fixed Income Securities
- BA 690 - Graduate Research
- BI 500 - Business Internship

At most one of the following:
- DS 630 - Applied Forecasting

DS 631 - Decision Analysis
DS 632 - System Simulation

Each is required, but at most 3 courses/9 hours of foundations may be counted toward the 30 credit-hour degree requirement. Previous equivalent undergraduate or graduate coursework may qualify students to exempt any of the foundation courses. Students must replace exempt MSF foundation courses with additional courses within their MSF concentration. Students who are not eligible to exempt at least one of the foundation courses would have to complete a total of 33 credit hours in order to fulfill the degree requirements.

At least one of which must be ACC 514, ACC 555 or ACC 608.

**General MSF Requirements**

- Complete at least 15 BE and FIN credits, excluding BE 530 and FIN 531.
- Complete at least 30 credits in the degree program.

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

At most 3 courses/9 hours of foundation courses may be counted toward the 30 credit-hour degree requirement. Previous equivalent undergraduate or graduate coursework may qualify students to exempt any of the foundation courses. Students must replace exempt MSF foundation courses with additional courses within their MSF concentration. Students who are not eligible to exempt at least one of the foundation courses would have to complete a total of 33 credit hours in order to fulfill the degree requirements.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions and transfer credit are granted at the discretion of the program faculty.

- MBA/MS Finance (http://catalog.umd.umich.edu/graduate/college-business/dual-degrees/mba-ms-finance)
- MS Accounting/MS Finance (p. 509) (Student-Initiated)

**Information Systems**

The Master of Science in Information Systems provides the knowledge and skills required to manage IT projects, oversee application development, and help develop an organization’s IT strategy.

The program offers expert faculty and expansive opportunities for networking. The program is open to all students who have an aptitude for information technology, and it is particularly useful to students with backgrounds in information technology management, computer science, computer engineering, electronics engineering, and related fields.

All courses in the program are offered on campus; a few are also occasionally available on-line. Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The program usually can be completed within 12 months of full-time study.
Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MS-Information Systems may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

**MS-Information Systems Program Goals and Objectives**

- **Goal 1:** Students will acquire discipline-specific knowledge and competencies.
  - Objective 1: Students will design an information system for an organization.
  - Objective 2: Students will evaluate security risks of an organization.
  - Objective 3: Students will use data to provide solutions to business questions.

- **Goal 2:** Students will develop effective communication skills.
  - Objective 4: Students will communicate complex IT concepts orally.
  - Objective 5: Students will communicate complex IT concepts effectively in writing.

- **Goal 3:** Students will develop IT strategy skills.
  - Objective 6: Students will be able to assess the impact of IT strategy on organizational effectiveness.
  - Objective 7: Students will manage information quality initiatives in organizations.

**MS-Information Systems Admission Prerequisites**

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

**MS-Information Systems Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 525</td>
<td>Core courses</td>
<td>3</td>
</tr>
<tr>
<td>MIS 575</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 641</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 642</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 644</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 649</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 650</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ACC 555</td>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td>DS 520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS 570</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS 630</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS 631</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Previous coursework deemed substantially similar to MIS 525, or an undergraduate degree in Information Technology Management, may qualify to exempt students from MIS 525. Exempt courses must be replaced with other approved courses in the degree program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions and transfer credit are granted at the discretion of the program faculty.

**Dual Degree, MBA/MS, Information Systems**

The MBA/MS-Information Systems combines a broad managerial education with in-depth training in the skills required to manage IT projects, oversee application development, and develop an organization’s IT strategy. The program is open to all students who have an aptitude for information technology, and it is particularly useful to students with backgrounds in information technology management, computer science, computer engineering, electronics engineering, and related fields. Students will learn how to manage the organizational challenges facing information systems managers while simultaneously acquiring the skills necessary to manage information systems functions.

The program allows students to receive both the MBA and MS-Information Systems simultaneously upon completion of the required 57-66 credit hours.

All courses in the program are offered on campus; many are also available on-line. Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters.

Admission is rolling, and you may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MBA/MS-Information Systems may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.
MBS/MS-Information Systems Admission Prerequisite

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

MBA/MS-Information Systems Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
<tr>
<td>OM 521</td>
<td>Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**MBA Core Courses**

**International AIM Course:**

Select one course from:

- BE 583  Global Econ: Crisis & Growth
- FIN 655  International Financial Mgt
- MKT 622  Global Marketing
- OB 610  Intronat Dimensions of Managmt
- OM 571  Supply Chain Management

**AIM Capstone:**

- BPS 535  Strategic Plan and Dec Making

**General AIM Courses:**

Select two courses from:

- ACC 616  Corp Acts & Reacts & Firm Val
- BA 605  Mgrl Dec Making
- BPS 585  Managing Strat Innov & Change

**MBA Electives or Optional Concentration**

Complete at least one of the available concentrations (9 credits; see Concentrations listed under Master of Business Administration degree program) or choose at three elective courses (9 credits).

**MS-Information Systems Core Courses**

- MIS 575  3
- MIS 641  3
- MIS 642  3
- MIS 644  3
- MIS 649  3
- MIS 650  3

Total Credit Hours 66

1 Up to three graduate credits may be elected from units other than the College of Business, with prior approval of the Graduate Program Advisor.

**Breadth Requirements**

- Complete AIM courses in at least 3 different disciplines.

- Complete no more than 4 AIM, MBA Concentration, and Elective courses (12 credits) in any one discipline other than Finance.
- Complete no more than 7 courses (21 credits) in Management Information Systems courses (MIS) after completion of the MBA Core.
- Complete graduate business courses in at least 7 different disciplines.

**MBA Communication Requirement**

Two, 4-hour workshops in Business Writing and Business Presentation skills are required for the MBA degree.

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Students may waive any of the MBA core courses except MIS 525 if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, the GPA in courses taken after the first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Previous coursework deemed substantially similar to MIS 525 may qualify to exempt students from the course. The exempt course must be replaced with other approved courses in the MS-Information Systems program.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program, including at least 36 credits in the MBA portion of the program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions, waivers and transfer credit are granted at the discretion of the program faculty.

**Supply Chain Management**

The Master of Science in Supply Chain Management teaches students how to manage the organizations, people, technology, and resources that transform raw materials into deliverable products.

The program offers expert faculty and expansive opportunities for networking. The degree is open to all students, regardless of their undergraduate major.

Students may enroll on a full- or part-time basis. All courses in the program are offered on campus; a few are also occasionally available online. Course offerings are greatest during the fall and winter semesters, and the program usually can be completed within 12 months of full-time study.

Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.
University of Michigan-Dearborn students who have been admitted to the MS-Supply Chain Management may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

### MS-Supply Chain Management Program Goals and Objectives

- **Goal 1:** Students will acquire knowledge in supply chain management concepts and tools.
  - Objective 1: Students will demonstrate understanding of supply chain management concepts.
  - Objective 2: Students will demonstrate understanding of supply chain management problem-solving tools.
- **Goal 2:** Students will develop skills to address relevant supply chain management issues and problems.
  - Objective 3: Students will evaluate supply chain management problems using appropriate problem-solving approaches.
  - Objective 4: Students will effectively communicate supply chain management issues.

### MS-Supply Chain Management Admission Prerequisites

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

### MS-Supply Chain Management Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>OM 521</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Logis Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>OM 664</td>
<td>Strategic Sourcing</td>
<td>3</td>
</tr>
<tr>
<td>OM 665</td>
<td>IT in SCM</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select three from the following:</td>
<td>9</td>
</tr>
<tr>
<td>DS 570</td>
<td>Management Science</td>
<td></td>
</tr>
<tr>
<td>DS 632</td>
<td>System Simulation</td>
<td></td>
</tr>
<tr>
<td>MIS 575</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 644</td>
<td>Analy &amp; Des of Supply Chains</td>
<td></td>
</tr>
<tr>
<td>OM 660</td>
<td>New Prod Design &amp; Development</td>
<td></td>
</tr>
<tr>
<td>OM 663</td>
<td>Lean &amp; Six Sigma</td>
<td></td>
</tr>
<tr>
<td>BA 690</td>
<td>Graduate Research</td>
<td></td>
</tr>
<tr>
<td>BA 691</td>
<td>Graduate Seminar</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 30

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Previous coursework deemed substantially similar to DS 520, MIS 525, or OM 521 may qualify to exempt students from those courses. Exempt courses must be replaced with other approved courses in the degree program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions and transfer credit are granted at the discretion of the program faculty.

### Dual Degree, MBA/MS, Supply Chain Management

The MBA/MS-Supply Chain Management dual degree combines a broad managerial education with specialized training in managing the organizations, people, technology, and resources that transform raw materials into deliverable products. The degree is open to all students, regardless of their undergraduate major. The program allows students to receive both the MBA and MS-Supply Chain Management simultaneously upon completion of the required 57-66 credit hours.

Students may enroll on a full- or part-time basis. All courses in the program are offered on campus; many are also available on-line. Course offerings are greatest during the fall and winter semesters. Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MBA/MS-Supply Chain Management may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

### MBA/MS-Supply Chain Management Admission Prerequisites

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

### MBA/MS-Supply Chain Management Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>MBA Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
<tr>
<td>OM 521</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Applied Integrated Management (AIM)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Choose one course from:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
</tr>
</tbody>
</table>

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td></td>
</tr>
<tr>
<td>OB 610</td>
<td>Intrnatl Dimensions of Managmt</td>
<td></td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td></td>
</tr>
<tr>
<td>AIM Capstone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPS 535</td>
<td>Strategic Plan and Dec Making</td>
<td>3</td>
</tr>
</tbody>
</table>

**General AIM courses**

Choose two courses from:

- ACC 616  Corp Acts & Reacts & Firm Val
- BA 605   Mgrl Dec Making
- BPS 585  Managing Strat Innov & Change

**MBA Electives or Optional Concentration**

Complete at least one of the available concentrations (9 credits; see Concentrations listed under Master of Business Administration degree program) or choose at least two elective courses (6 credits).

**MS-Supply Chain Management Core Courses**

OM 571  Supply Chain Management 3
OM 661  Supply Chain Logis Mgmt 3
OM 664  Strategic Sourcing 3
OM 665  IT in SCM 3

**MS-Supply Chain Management Electives**

Choose three of the following courses: 9

- DS 570  Management Science
- DS 632  System Simulation
- MIS 575
- MIS 644
- OM 660  Analy & Des of Supply Chains
- OM 662  New Prod Design & Development
- OM 663  Lean & Six Sigma
- BA 690  Graduate Research
- BA 691  Graduate Seminar

**Total Credit Hours** 66

1 Up to three graduate credits may be elected from units other than the College of Business, with prior approval of the Graduate Program Advisor.

**Breadth Requirements**

- Complete AIM courses in at least 3 different disciplines.
- Complete no more than 4 AIM, MBA Concentration, and Elective courses (12 credits) in any one discipline other than Finance.
- Complete no more than 7 courses (21 credits) in Operations Management (OM) after completion of the MBA Core.
- Complete graduate business courses in at least 7 different disciplines.

No single course may be counted toward more than one requirement or concentration in the dual degree program.

**MBA Communication Requirement**

Two, 4-hour workshops in Business Writing and Business Presentation skills are required for the MBA degree.

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Students may waive ACC 505, BE 530, BPS 516, FIN 531, MKT 515, or OB 510 if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, the GPA in courses taken after the first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Previous coursework deemed substantially similar to DS 520, MIS 525, or OM 521 may qualify to exempt students from those courses. Exempt courses must be replaced with other MS-Supply Chain Management Elective Courses.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program, including at least 36 credits in the MBA portion of the program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions, waivers and transfer credit are granted at the discretion of the program faculty.

**Dual Degrees**

- Master of Business Administration/Master of Science in Finance (p. 503)
- Master of Business Administration/Master of Science in Information Systems (p. 507)
- Master of Business Administration/Master of Science in Supply Chain Management (p. 508)
- Master of Science in Accounting/Master of Science in Finance (p. 509) (Student-Initiated)
- Master of Business Administration/Master of Science in Engineering-Industrial and Systems Engineering (p. 510)
- Master of Business Administration/Master of Health Services Administration (p. 513) (Student-Initiated)

**Dual Degree, MBA/MS, Finance**

The MBA/MS-Finance combines a broad managerial education with specialized training required for success in the financial professions. Students select either the corporate finance or the investments concentration in the MS-Finance. The program is open to students with strong quantitative and analytical skills, regardless of their undergraduate major.

The program allows students to receive both the MBA and MS-Finance simultaneously upon completion of 57-66 credit hours, depending on MBA core course waivers earned (see notes at end of MBA/MS in Finance Curriculum, below).

Students may complete the program on campus, on-line, or any combination of the two, depending on the program options selected.
Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MBA/MS-Finance may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

**MBA/MS in Finance Admission**

**Prerequisites**

- Mathematics admission prerequisite. Calculus is not required for admission to the MS in Finance. However, applicants who wish to pursue careers in investments or risk management, as well as those who wish to earn Chartered Financial Analysts (CFA) credentials, are strongly recommended to satisfy the Mathematics admission requirement with a college level Calculus course. Also, Calculus is a course prerequisite to FIN 656, an optional course in the Investments concentration. Students who wish to take this course must first complete a college level Calculus course with a grade of "C" or better.
- GMAT/GRE admission prerequisite

**MBA/MS in Finance Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA Core Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
<tr>
<td>OM 521</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Applied Integrated Management (AIM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International AIM Course:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td>3</td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td></td>
</tr>
<tr>
<td>OB 610</td>
<td>Intrnatl Dimensions of Managmt</td>
<td></td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td></td>
</tr>
<tr>
<td>AIM Capstone:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPS 535</td>
<td>Strategic Plan and Dec Making</td>
<td>3</td>
</tr>
<tr>
<td>General AIM Courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select two courses from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 616</td>
<td>Corp Acts &amp; Reacts &amp; Firm Val</td>
<td>6</td>
</tr>
<tr>
<td>BA 605</td>
<td>Mgrl Dec Making</td>
<td></td>
</tr>
<tr>
<td>BPS 585</td>
<td>Managing Strat Innov &amp; Change</td>
<td></td>
</tr>
<tr>
<td>MBA Electives or Optional Concentration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete at least one of the available MBA concentrations (9 credits; 6-9 see Concentrations listed under Master of Business Administration degree program) or choose at least two elective courses (6 credits)

**MSF Foundation Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
</tr>
</tbody>
</table>

**MSF Concentrations**

Select one of the following concentrations:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
</tr>
<tr>
<td>FIN 650</td>
<td>Corporate Valuation &amp; Strategy</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
</tr>
</tbody>
</table>

**Accounting Electives:**

Select two of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 514</td>
<td>Financial Reporting</td>
</tr>
<tr>
<td>ACC 516</td>
<td>Advanced Accounting</td>
</tr>
<tr>
<td>ACC 555</td>
<td>Cost Management</td>
</tr>
<tr>
<td>ACC 560</td>
<td>Intro Federal Income Taxation</td>
</tr>
<tr>
<td>ACC 601</td>
<td>Information Tech Auditing</td>
</tr>
<tr>
<td>ACC 603</td>
<td>Controllership</td>
</tr>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
</tr>
<tr>
<td>ACC 660</td>
<td>Advanced Federal Income Tax</td>
</tr>
</tbody>
</table>

**General Electives:**

At most one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS 630</td>
<td>Applied Forecasting</td>
</tr>
<tr>
<td>DS 631</td>
<td>Decision Analysis</td>
</tr>
<tr>
<td>DS 632</td>
<td>System Simulation</td>
</tr>
</tbody>
</table>

Total Credit Hours 21-30

**Investments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
</tr>
<tr>
<td>FIN 651</td>
<td>Investmnt Proc, Analysis &amp; Mgmt</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
</tr>
<tr>
<td>FIN 653</td>
<td>Topics/Investments &amp; Cap Mkts</td>
</tr>
</tbody>
</table>

Electives: 9-18

Total Credit Hours 66
to ACC 505, BE 530, DS 520 or FIN 531 may qualify to exempt students

Previous coursework deemed substantially similar

MSF Foundation Course Exemptions

program completed within the previous 10 years.

must have earned a B or better in equivalent courses as a part of a degree

hours). Students who do not meet these criteria may request to have their

within the previous 10 years and have earned at least a 3.2 post-60 GPA

MBA Core Course Waivers

Students may waive BPS 516, MIS 525, MKT 515, OB 510 or OM 521 if

they have equivalent courses in an AACSB business program completed

within the previous 10 years and have earned at least a 3.2 post-60 GPA

(that is, the GPA in courses taken after the first 60 undergraduate credit

hours). Students who do not meet these criteria may request to have their
courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

MSF Foundation Course Exemptions

Previous coursework deemed substantially similar
to ACC 505, BE 530, DS 520 or FIN 531 may qualify to exempt students

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions, waivers and transfer credit are granted at the discretion of the program faculty.

BA 605  Mgrl Dec Making  3 Credit Hours
This course covers the findings of research on behavioral decision making as they apply to managerial decision making. You will learn how the human mind works, what it is particularly good at and not so good at, and what the implications of this are for managerial decision making. The course will help you make better decisions and understand the potential shortcomings of the decisions made by your colleagues, competitors, collaborators, and customers. Topics include human cognition, overconfidence, heuristics and biases in decision making, bounded awareness, framing, preference reversal, motivational and emotional influences on decision making, escalation of commitment, expertise in decision making, and fairness and ethics in decision making. We will apply the research on behavioral decision making to a wide variety of problems in various domains of business, study how applications of information systems can mitigate limitations of the human mind, and apply our knowledge of the way the human mind works to develop an understanding of ways to improve managerial decision making. Students interested in careers in a wide variety of business professions will find the knowledge and skills gained in this course to be useful in their professional endeavors.
Prerequisite(s): BE 530 and MIS 525 and OB 510 and (DS 520 or IMSE 510 or IMSE 514)

BA 690  Graduate Research  1 to 3 Credit Hours
To provide masters candidates with the opportunity to undertake a research project under the supervision of a faculty member. The research topic is chosen by the student, in consultation with a faculty member in the appropriate discipline. Written approval must be obtained at least two weeks prior to registration on a form available in the Graduate Office. The request must include a comprehensive description of the proposed research project, as well as a time line for the project’s completion.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Business

BA 691  Graduate Seminar  1 to 3 Credit Hours
Topics Course. To provide masters candidates with an opportunity for study of selected advanced topics in particular fields. Topics vary. See Schedule of Classes for current offerings. May be elected more than once if topics differ.
Restriction(s):
Can enroll if Class is Graduate
BA 691A Graduate Seminar 3 Credit Hours
Topic: The Internal Revenue Service. This course introduces the student to the structure, organization, practices and procedures of the Internal Revenue Service. The course is intended to give students an understanding of the organizational makeup of the Internal Revenue Service and the authority of its various employees. The different approaches to resolving tax controversies will be explored through the study of assigned readings and in-depth class discussions. The course will be conducted in a seminar-like fashion with each student expected to make significant contributions to class discussions. Attention to news items affecting the area of federal tax procedures is expected, as well as conveyance to class of these newsworthy developments. This course is appropriate for MSA? Tax Concentration students.

FIN 531 Fin Fundament & Value Creation 3 Credit Hours
This course provides the fundamentals of the finance discipline with an emphasis of value creation as the primary objective of a corporation. Capital budgeting analysis and techniques are extensively discussed. Valuation of securities is presented along with an introduction to modern portfolio theory and market efficiency. Issues related to international financial management are also introduced.
Prerequisite(s): ACC 505 and (DS 520* or IMSE 514*)
Restriction(s):
Can enroll if Class is Graduate

FIN 581 Topics in Corporate Finance 3 Credit Hours
This course integrates theory and practice for major topics such as capital structure and dividend policy. Additional topics include leasing, corporate governance, mergers and acquisitions, short-term financial management, and risk management. These topics are examined from the perspective of the corporate financial manager.
Prerequisite(s): FIN 531 and BE 530* and ACC 505 and (DS 520 or IMSE 514)

FIN 650 Corporate Valuation & Strategy 3 Credit Hours
This course examines a variety of financial management topics, such as project and enterprise valuation and risk analysis, corporate restructuring, dividend policy, corporate governance, and current asset management using case studies and readings.
Prerequisite(s): FIN 581 and BE 530

FIN 651 Invstmnt Proc, Analysis & Mgmt 3 Credit Hours
This course provides an examination of the process of investment analysis and management. Topics include: analysis of fixed income securities, stock valuation, and introduction to derivative securities; discussion of portfolio theory and management; and an overview of investment environment. Wherever it is appropriate, the above topics will also be discussed in a global context.
Prerequisite(s): ACC 505 and FIN 531 and (DS 520* or IMSE 514*)
Restriction(s):
Can enroll if Class is Graduate

FIN 652 Derivatives & Risk Management 3 Credit Hours
The focus of this course is on understanding the derivative securities and their use in risk management. This course provides an in-depth introduction to options and option pricing as well as an extensive overview of forward, future and swap contracts. This course will draw upon the intuition and analytic tools developed to examine sophisticated financial products or strategies that firms and investors have used in their risk management.
Prerequisite(s): FIN 531 and ACC 505 and (DS 520 or IMSE 514)
Restriction(s):
Can enroll if Class is Graduate

FIN 653 Topics/Investments & Cap Mkts 3 Credit Hours
This course prepares students for career development and advancement in the challenging investment profession. The course provides an in-depth study of advanced contemporary topics in global investments and capital markets that are selected from the common body of knowledge of the Chartered Financial Analysts (CFA) program. Topics may include a subset of: advanced investment theory and valuation techniques, asset allocation, behavioral finance, hedge fund, emerging markets and global investing, ethics for investment professionals, financial statements and security analysis, market efficiency, market microstructure, portfolio management and performance evaluation, etc. The format and the topics may vary in each offering.
Prerequisite(s): FIN 652 FIN 651 and (DS 520 or IMSE 514)
Restriction(s):
Can enroll if Class is Graduate

FIN 654 Financial Intermediation 3 Credit Hours
Financial Intermediaries provide services to borrowers and lenders, often creating new securities or providing brokerage services broadly defined. Intermediaries include depository institutions such as commercial banks and non-depository institutions such as security firms, pension funds and insurance companies. This course studies the functions of intermediaries, the industry regulations, and competition in a deregulated environment. Special emphasis is placed on financial markets and fiscal instruments created by intermediaries, risk of intermediation, risk management, and financial innovations in the industry.
Prerequisite(s): FIN 531* and ACC 505 and (DS 520 or IMSE 514)

FIN 655 International Financial Mgt 3 Credit Hours
This course views international finance at the micro level, but of necessity it will cover some aspects of macro-level international finance as well, such as the international financial system and balance of payments mechanism. The following topics will be covered: the international financial system, balance of payments, foreign exchange, exchange risk management, international financial markets, foreign investment, and foreign trade financing.
Prerequisite(s): FIN 531 and ACC 505 and BE 530 and (DS 520 or IMSE 514)

FIN 656 Fixed Income Securities 3 Credit Hours
The fixed income market, accompanied by the introduction of sophisticated financial engineering techniques, has grown enormously over the last two decades. Today, the fixed income market has been a vital segment of the global financial market. This course covers major topics associated with this market, including bond pricing, yields, and volatility; term structure of interest rates and yield curve; market structure and analytical techniques for Treasury, municipal, corporate bonds, mortgage-backed securities, asset-backed securities, and bond with embedded options. The fundamental objective of this course is to help students develop analytical skills for pricing fixed income securities and managing interest rate risk. In addition, materials covered in this course are compatible with the Common Body of Knowledge in Analysis of Debt Investments that is required by the Chartered Financial Analysts (CFA) examination. Students will not receive credit for both FIN 456 and FIN 656.
Prerequisite(s): (MATH 113 or MATH 115 or MPLS with a score of 116) and FIN 651* and (FIN 581 or FIN 652 or FIN 654 or FIN 655)
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.
Dual Degree, MBA/MS, Information Systems

The MBA/MS-Information Systems combines a broad managerial education with in-depth training in the skills required to manage IT projects, oversee application development, and develop an organization’s IT strategy. The program is open to all students who have an aptitude for information technology, and it is particularly useful to students with backgrounds in information technology management, computer science, computer engineering, electronics engineering, and related fields. Students will learn how to manage the organizational challenges facing information systems managers while simultaneously acquiring the skills necessary to manage information systems functions.

The program allows students to receive both the MBA and MS-Information Systems simultaneously upon completion of the required 57-66 credit hours.

All courses in the program are offered on campus; many are also available on-line. Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters.

Admission is rolling, and you may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MBA/MS-Information Systems may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

MBS/MS-Information Systems Admission Prerequisite
- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

MBA/MS-Information Systems Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
<tr>
<td>OM 521</td>
<td>Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>
| MBA Core Courses |                                       |![](https://www.ericsson.com/magazine/2022/images/newsroom/ericsson successfully completes 5g trials underway.png)

MBA Applied Integrated Management (AIM)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPS 535</td>
<td>Strategic Plan and Dec Making</td>
<td>3</td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td>3</td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td>3</td>
</tr>
<tr>
<td>OB 610</td>
<td>Inntnat Dimensions of Managmt</td>
<td>3</td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>AIM Capstone:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BPS 585</td>
<td>Managing Strat Innov &amp; Change</td>
<td>3</td>
</tr>
<tr>
<td>MIS 650</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS-Information Systems Core Courses:</td>
<td></td>
<td>66</td>
</tr>
<tr>
<td>MIS 575</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 641</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 642</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 644</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 649</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MIS 650</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**MBA Electives or Optional Concentration**
- Complete at least one of the available concentrations (9 credits; see Concentrations listed under Master of Business Administration degree program) or choose at three elective courses (9 credits).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td>3</td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td>3</td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td>3</td>
</tr>
<tr>
<td>OB 610</td>
<td>Inntnat Dimensions of Managmt</td>
<td>3</td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**MBA Communication Requirement**
- Two, 4-hour workshops in Business Writing and Business Presentation skills are required for the MBA degree.

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Students may waive any of the MBA core courses except MIS 525 if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, the GPA in courses taken after the first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students
must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Previous coursework deemed substantially similar to MIS 525 may qualify to exempt students from the course. The exempt course must be replaced with other approved courses in the MS-Information Systems program.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program, including at least 36 credits in the MBA portion of the program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions, waivers and transfer credit are granted at the discretion of the program faculty.

Dual Degree, MBA/MS, Supply Chain Management

The MBA/MS-Supply Chain Management dual degree combines a broad managerial education with specialized training in managing the organizations, people, technology, and resources that transform raw materials into deliverable products. The degree is open to all students, regardless of their undergraduate major. The program allows students to receive both the MBA and MS-Supply Chain Management simultaneously upon completion of the required 57-66 credit hours.

Students may enroll on a full- or part-time basis. All courses in the program are offered on campus; many are also available on-line. Course offerings are greatest during the fall and winter semesters. Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the MBA/MS-Supply Chain Management may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

MBA/MS-Supply Chain Management Admission Prerequisites

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

MBA/MS-Supply Chain Management Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
</tbody>
</table>

OB 510  Organization Behavior  3
OM 521  Operations Management  3

Applied Integrated Management (AIM)

International AIM course

Choose one course from:

- BE 583  Global Econ: Crisis & Growth  3
- FIN 655  International Financial Mgt
- MKT 622  Global Marketing
- OB 610  Intrnatl Dimensions of Managmt
- OM 571  Supply Chain Management

AIM Capstone

BPS 535  Strategic Plan and Dec Making  3

General AIM courses

Choose two courses from:

- ACC 616  Corp Acts & Reacts & Firm Val
- BA 605  Mgrl Dec Making
- BPS 585  Managing Strat Innov & Change

MBA Electives or Optional Concentration

Complete at least one of the available concentrations (9 credits; see Concentrations listed under Master of Business Administration degree program) or choose at least two elective courses (6 credits).

MS-Supply Chain Management Core Courses

OM 571  Supply Chain Management  3
OM 661  Supply Chain Logis Mgmt  3
OM 664  Strategic Sourcing  3
OM 665  IT in SCM  3

MS-Supply Chain Management Electives

Choose three of the following courses: 9

- DS 570  Management Science
- DS 632  System Simulation
- MIS 575
- MIS 644
- OM 660  Analy & Des of Supply Chains
- OM 662  New Prod Design & Development
- OM 663  Lean & Six Sigma
- BA 690  Graduate Research
- BA 691  Graduate Seminar

Total Credit Hours  66

1  Up to three graduate credits may be elected from units other than the College of Business, with prior approval of the Graduate Program Advisor.

Breadth Requirements

- Complete AIM courses in at least 3 different disciplines.
- Complete no more than 4 AIM, MBA Concentration, and Elective courses (12 credits) in any one discipline other than Finance.
- Complete no more than 7 courses (21 credits) in Operations Management (OM) after completion of the MBA Core.
- Complete graduate business courses in at least 7 different disciplines.

No single course may be counted toward more than one requirement or concentration in the dual degree program.
MBA Communication Requirement

Two, 4-hour workshops in Business Writing and Business Presentation skills are required for the MBA degree.

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Students may waive ACC 505, BE 530, BPS 516, FIN 531, MKT 515, or OB 510 if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, the GPA in courses taken after the first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Previous coursework deemed substantially similar to DS 520, MIS 525, or OM 521 may qualify to exempt students from those courses. Exempt courses must be replaced with other MS-Supply Chain Management Elective Courses.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program, including at least 36 credits in the MBA portion of the program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Exemptions, waivers and transfer credit are granted at the discretion of the program faculty.

Dual Degree, MS Accounting/MS Finance (Student-Initiated)

The MS in Accounting/MS in Finance dual degree program combines specialized training for careers in corporate accounting, controllership, and public accounting with specialized training required for success in the financial professions. Students select either the corporate finance or the investments concentration in the MS-Finance. Students in the program can qualify to receive a 100% reimbursement of the cost of completing CPA exam preparation through CPAexcel®. The program is open to students with strong quantitative and analytical skills, regardless of their undergraduate major.

The program allows students to receive both the MS in Accounting and the MS in Finance simultaneously upon completion of 51-54 credit hours, depending on which MSF concentration is selected.

Students may enroll on a full- or part-time basis. All courses in the program are offered on campus; many are also available on-line. Course offerings are greatest during the fall and winter semesters, and the program usually can be completed within 12 months of full-time study.

Admission is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students.

University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

MS in Accounting/MS in Finance Admission Prerequisites

- Mathematics admission prerequisite. Calculus is not required for admission. However, applicants who wish to pursue careers in investments or risk management, as well as those who wish to earn Chartered Financial Analyst (CFA) credentials, are strongly recommended to satisfy the Mathematics admission requirement with a college level Calculus course. Also, Calculus is a course prerequisite to FIN 656, an optional course in the MSF Investments concentration. Students who wish to take this course must first complete a college level Calculus course with a grade of “C” or better.
- GMAT/GRE admission prerequisite, unless applicant qualifies for the exemption

MS in Accounting/MS in Finance Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>MSF Foundation Courses</strong> Required:</td>
<td></td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>MSF Concentration</strong> Select one of the following MSF concentrations:</td>
<td>18-21</td>
</tr>
<tr>
<td></td>
<td><strong>MSF Corporate Finance</strong></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td><strong>MSF Required:</strong></td>
<td></td>
</tr>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN 650</td>
<td>Corporate Valuation &amp; Strategy</td>
<td>3</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>MSF Accounting Electives:</strong> Select two of the following:</td>
<td>6</td>
</tr>
<tr>
<td>ACC 514</td>
<td>Financial Reporting</td>
<td></td>
</tr>
<tr>
<td>ACC 516</td>
<td>Advanced Accounting</td>
<td></td>
</tr>
<tr>
<td>ACC 555</td>
<td>Cost Management</td>
<td></td>
</tr>
<tr>
<td>ACC 560</td>
<td>Intro Federal Income Taxation</td>
<td></td>
</tr>
<tr>
<td>ACC 601</td>
<td>Information Tech Auditing</td>
<td></td>
</tr>
<tr>
<td>ACC 603</td>
<td>Controllership</td>
<td></td>
</tr>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td></td>
</tr>
<tr>
<td>ACC 660</td>
<td>Advanced Federal Income Tax</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>MSF General Electives:</strong> Select two of the following:</td>
<td>6</td>
</tr>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td></td>
</tr>
<tr>
<td>FIN 651</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>FIN 654</td>
<td>Financial Intermediation</td>
<td></td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
</tbody>
</table>
Dual Degree, MBA/MSE, Industrial and Systems Engineering

BA 690 Graduate Research
BI 500 Business Internship

At most one of the following:
DS 630 Applied Forecasting
DS 631 Decision Analysis
DS 632 System Simulation

1 For at least one of which must be ACC 514, ACC 555 or ACC 608.

MSF Investments

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FIN 651</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN 653</td>
<td>Topics/Investments &amp; Cap Mkts</td>
<td>3</td>
</tr>
</tbody>
</table>

**MSF Electives:**
Select two of the following: 6

BE 583 Global Econ: Crisis & Growth
FIN 581 Topics in Corporate Finance
FIN 654 Financial Intermediation
FIN 655 International Financial Mgt
FIN 656 Fixed Income Securities
BA 690 Graduate Research
BI 500 Business Internship

At most one of the following:
DS 630 Applied Forecasting
DS 631 Decision Analysis
DS 632 System Simulation

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>ACC 514</td>
<td>Financial Reporting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 516</td>
<td>Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 555</td>
<td>Cost Management</td>
<td>3</td>
</tr>
<tr>
<td>ACC 557</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC 560</td>
<td>Intro Federal Income Taxation</td>
<td>3</td>
</tr>
<tr>
<td>ACC 580</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**MSF Foundation Course Exemptions**

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Previous coursework deemed substantially similar to BE 530, DS 520 or FIN 531 may qualify to exempt students from these MSF foundation courses. Students must replace exempt MSF foundation courses with additional courses within their MSF concentration.

Regardless of exemption credits granted, students must earn at least 51 credits in the dual-degree program if completing the MSF Corporate Finance concentration, or at least 54 credits if completing the MSF Investments concentration.

Recommended for students who intend to take the CPA exam.

Credit Hour

**MSF Electives**

The MSA Electives are NOT REQUIRED of students selecting the MSF Corporate Finance concentration

Select two of the following: 6

ACC 539 Not-for-Profit Accounting
ACC 601 Information Tech Auditing
ACC 603 Controllership
ACC 604 Auditing&Forensic Examination
ACC 605 International Accounting
ACC 608 Financial Statement Analysis
ACC 614 Advanced Accounting II
ACC 657 Adv Auditing & Assurance Serv

Exemptions and transfer credit are granted at the discretion of the program faculty.

Dual Degree, MBA/MSE, Industrial and Systems Engineering

The MBA/MSE-Industrial and Systems Engineering has been developed to meet the need for professionals who have expertise in both engineering and management.

It is open to students who have completed a bachelor of science degree in engineering, a physical science, computer science, or applied mathematics.

The program is offered jointly by the College of Business and the College of Engineering and Computer Science, through the Horace H. Rackham School of Graduate Studies. It allows students to receive both the MBA and MSE-ISE simultaneously upon completion of the required 57-66 credit hours.

You may complete the program on campus, on-line, or any combination of the two. (The MBA concentrations are optional, and most require
You may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters.

Admission is rolling, and you may begin the program in September or January. May admission is also usually possible for part-time students. Students must apply and be admitted to the MBA and the MSE-ISE programs separately.

University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate business credits during the final semester of their undergraduate program.

Program Goals and Objectives

Master of Business Administration

Goal 1: Students will have an understanding of the core business disciplines and be able to apply this knowledge to global business situations.

Objectives: MBA students will:

1. Demonstrate knowledge of disciplinary concepts, terminology, models, and perspectives.
2. Identify business problems and apply appropriate solutions (problem-finding/problem-solving).
3. Integrate knowledge across disciplinary areas (integrative thinking).
4. Apply knowledge in a global environment.

Goal 2: Students will be effective communicators.

Objectives: MBA students will:

1. Demonstrate an ability to effectively communicate in a manner that is typically required of a business professional.

Goal 3: Students will appreciate the importance of ethical/corporate social responsibility principles.

Objectives: MBA students will:

1. Identify and explain alternative approaches to ethical/corporate social responsibility issues.

Admission Prerequisites

Master of Business Administration

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

MSE in Industrial and Systems Engineering

- Completion of a bachelor of science degree in engineering, a physical science, computer science, or applied mathematics
- A course in Probability and Statistics equivalent to IMSE 510
- A course in Operations Research equivalent to IMSE 500

Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

MBA Applied Integrated Management (AIM)

International AIM Course:

- Select one course from:
  - BE 583 Global Econ: Crisis & Growth
  - FIN 655 International Financial Mgt
  - MKT 622 Global Marketing
  - OB 610 Intronat Dimensions of Managmt
  - OM 571 Supply Chain Management

AIM Capstone:

- BPS 535 Strategic Plan and Dec Making 3

General AIM Courses:

- Select two courses from:
  - ACC 616 Corp Acts & Reacts & Firm Val
  - BA 605 Mgrl Dec Making
  - BPS 585 Managing Strat Innov & Change

MBA Electives or Optional Concentration 9

Complete at least one of the available concentrations (see below) or choose at least three elective courses.

ISE Core

- IMSE 501 Human Factors & Ergonomics 3
- IMSE 511 Design and Analysis of Exp 3
- IMSE 514 Multivariate Statistics 3
- IMSE 580 Prod & Oper Engineering I 3

ISE Concentration

Students must complete four courses from one or more of the ISE Concentration areas below.

Total Credit Hours 57-66

1 Up to three graduate credits may be elected from units other than the College of Business. Elective courses must be approved by the Graduate Program Advisor in advance of course election.

MBA Concentrations

Concentrations are optional, and students may earn more than one. Some concentrations are available online; others require campus enrollment. Concentrations are awarded at the time of graduation.

Accounting

Available on campus

Select three courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 601</td>
<td>Information Tech Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC 603</td>
<td>Controllership</td>
<td>3</td>
</tr>
<tr>
<td>ACC 604</td>
<td>Auditing&amp;Forensic Examination</td>
<td>3</td>
</tr>
<tr>
<td>ACC 605</td>
<td>International Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 9
## Finance
Available online and on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one course from:</td>
<td></td>
</tr>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN 561</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select two courses from:</td>
<td>6</td>
</tr>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td></td>
</tr>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td></td>
</tr>
<tr>
<td>FIN 561</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>FIN 652</td>
<td>Derivatives &amp; Risk Management</td>
<td></td>
</tr>
<tr>
<td>FIN 654</td>
<td>Financial Intermediation</td>
<td></td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

## International Business
Available online and on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select three courses from:</td>
<td>9</td>
</tr>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td></td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td></td>
</tr>
<tr>
<td>OB 610</td>
<td>Intrnatl Dimensions of Managmt</td>
<td></td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

## Management Information Systems
Available on Campus

Choose any three MIS graduate courses other than MIS 525.

## Marketing
Available on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required:</td>
<td>3</td>
</tr>
<tr>
<td>MKT 565</td>
<td>Advanced Marketing Management</td>
<td></td>
</tr>
</tbody>
</table>

Select two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 564</td>
<td>Graduate Market Research</td>
<td>6</td>
</tr>
<tr>
<td>MKT 620</td>
<td>Understanding Customers</td>
<td></td>
</tr>
<tr>
<td>MKT 621</td>
<td>Advertising and Promotion</td>
<td></td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td></td>
</tr>
<tr>
<td>MKT 628</td>
<td>MKT Turning Data into Revenue</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

## Supply Chain Management
Available on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required:</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 577</td>
<td>Reliability Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 555</td>
<td>Supply Chain Management</td>
<td></td>
</tr>
<tr>
<td>IMSE 581</td>
<td>Prod &amp; Oper Engineering II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

## ISE Concentrations

### Industrial and Systems Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 546</td>
<td>Vehicle Ergonomics II</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 543</td>
<td>Industrial Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 546</td>
<td>Safety Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 548</td>
<td>Human Factors</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 577</td>
<td>User Interface Des &amp; Anlsis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 593</td>
<td>Vehicle Package Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

### Operations Research and Management Science Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 505</td>
<td>Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5205</td>
<td>Eng Risk-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5215</td>
<td>Program Budget, Cost Est &amp; Con</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 559</td>
<td>System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 605</td>
<td>Advanced Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 606</td>
<td>Advanced Stochastic Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

### Quality Systems Design Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 513</td>
<td>Robust Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 519</td>
<td>Quan Meth in Quality Engin</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 561</td>
<td>Tot Qual Mgmt and Six Sigma</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 567</td>
<td>Reliability Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

### Advanced Manufacturing and Automation Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 502</td>
<td>Computer-Integrated Mfg</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 538</td>
<td>Intelligent Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5655</td>
<td>Supply Chain Management</td>
<td></td>
</tr>
<tr>
<td>IMSE 581</td>
<td>Prod &amp; Oper Engineering II</td>
<td></td>
</tr>
</tbody>
</table>

### Information Systems

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 556</td>
<td>Database Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.
The College of Business at UM-Dearborn and the School of Public Health at UM-Ann Arbor offer a jointly administered dual degree program leading to the Master of Health Services Administration (MHSA) and the Master of Business Administration (MBA). This program takes advantage of many areas of overlap between the two curricula, and allows admitted students to receive both degrees simultaneously upon completion of 82 credit hours.

The MHSA focuses on the organization, financing, marketing, and management of health care institutions and the delivery of personal health services in the United States. The program prepares students for management careers in the unique environment of health care, including careers in health systems, hospital, clinic, and emergency services management. The MHSA degree is also appropriate for those seeking positions as planners, policy analysts, or consultants focusing on the financing, organization, quality and delivery of personal health services in either the public or the private sector.

The MBA offers a number of skills beyond the MHSA, including expanded coverage of finance, marketing, and strategies as practiced in industries other than health care. It is valuable to understand the management of for-profit corporations in health care, and it provides a broader foundation for senior management positions in all sectors.

Students may complete the MBA portion of the dual degree in evening courses at the Dearborn campus, on-line, or any combination of the two. (The MBA concentrations are optional, and most require a campus presence.) Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The MHSA portion of the program requires full-time enrollment and daytime courses at the Ann Arbor campus. Students must verify the curriculum for the MHSA portion of this dual-degree program with their program advisor in the School of Public Health at UM-Ann Arbor.

Students must apply and be admitted to the MBA and MHSA separately. Students already enrolled in either degree may apply for the second degree before completing one-half of their degree requirements. Admission to the MBA is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students. For detailed information about admission to the MHSA, see sph.umich.edu/hmp/programs/mhsa.html (https://sph.umich.edu/hmp/programs/mhsa.html).

University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate business credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

### MBA/Master of Health Services Administration Admission Prerequisites

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

### MBA/Master of Health Services Administration Admission Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA</td>
<td>Required:</td>
<td></td>
</tr>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
</tbody>
</table>

### Program Details

#### Breadth Requirements

- Complete AIM courses in at least 3 different disciplines.
- Complete no more than four AIM, MBA Concentration, and MBA Elective Courses (12 credits) in any single discipline. This does not apply to courses associated with the MSE in ISE portion of the dual-degree program.
- Complete graduate business courses in at least 5 different disciplines.

No single course may be counted toward more than one requirement or concentration in the dual degree program.

### Course Waivers and Transfer Credit

Students may waive ACC 505, BE 530, BPS 516, FIN 531, MIS 525, MKT 515, and OB 510 if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, your GPA in courses taken after your first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Waivers and transfer credit are granted at the discretion of the program faculty.

### Dual Degree, MBA/MHSA (Student-Initiated)

The College of Business at UM-Dearborn and the School of Public Health at UM-Ann Arbor offer a jointly administered dual degree program leading to the Master of Health Services Administration (MHSA) and the Master of Business Administration (MBA). This program takes advantage of many areas of overlap between the two curricula, and allows admitted students to receive both degrees simultaneously upon completion of 82 credit hours.

The MHSA focuses on the organization, financing, marketing, and management of health care institutions and the delivery of personal health services in the United States. The program prepares students for management careers in the unique environment of health care, including careers in health systems, hospital, clinic, and emergency services management. The MHSA degree is also appropriate for those seeking positions as planners, policy analysts, or consultants focusing on the financing, organization, quality and delivery of personal health services in either the public or the private sector.

The MBA offers a number of skills beyond the MHSA, including expanded coverage of finance, marketing, and strategies as practiced in industries other than health care. It is valuable to understand the management of for-profit corporations in health care, and it provides a broader foundation for senior management positions in all sectors.

Students may complete the MBA portion of the dual degree in evening courses at the Dearborn campus, on-line, or any combination of the two. (The MBA concentrations are optional, and most require a campus presence.) Students may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters. The MHSA portion of the program requires full-time enrollment and daytime courses at the Ann Arbor campus. Students must verify the curriculum for the MHSA portion of this dual-degree program with their program advisor in the School of Public Health at UM-Ann Arbor.

Students must apply and be admitted to the MBA and MHSA separately. Students already enrolled in either degree may apply for the second degree before completing one-half of their degree requirements. Admission to the MBA is rolling, and students may begin the program in September or January. May admission is also usually possible for part-time students. For detailed information about admission to the MHSA, see sph.umich.edu/hmp/programs/mhsa.html (https://sph.umich.edu/hmp/programs/mhsa.html).

University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate business credits during the final semester of their undergraduate program. Students must successfully complete their undergraduate degree before taking any additional graduate-level courses.

### MBA/Master of Health Services Administration Admission Prerequisites

- Mathematics admission prerequisite
- GMAT/GRE admission prerequisite

### MBA/Master of Health Services Administration Admission Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA</td>
<td>Required:</td>
<td></td>
</tr>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select one of the following courses:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OB 510 Organization Behavior</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HMB 616 Understanding Organizations 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HMB 643 Individual and Group Behavior in Health Service Organizations 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MIS 525</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HMP 665 Computer Information and Decision Support Systems in Health Care</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>BE 530 Econ Analysis: Firm &amp; Consumer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HMP 660 Microeconomic Theory 1</td>
<td></td>
</tr>
</tbody>
</table>

**MBA Applied Integrated Management (AIM)**

**International AIM Course:**
- Select one course from:
  - BE 583 Global Econ: Crisis & Growth
  - FIN 655 International Financial Mgt
  - MKT 622 Global Marketing
  - OB 610 Intnratl Dimensions of Managmt
  - OM 571 Supply Chain Management

**AIM Capstone:**
- BPS 535 Strategic Plan and Dec Making

**General AIM Courses:**
- Select two courses from:
  - ACC 616 Corp Acts & Reacts & Firm Val
  - BA 605 Mgrl Dec Making
  - BPS 585 Managing Strat Innov & Change

**School of Public Health Courses**

- EHS 500
- EPID 503
- HMP 600 The Health Services System I
- HMP 601 The Health Services System II
- HMP 606 Managerial Accounting for Health Care Administration 2
- HMP 607 Corporate Finance for Health Care Administration 3
- HMP 608 Health Care Accounting
- HMP 615 Introduction to Public Health Policy
- HMP 620 Professional Development
- HMP 660 Economics of Health Management and Policy I
- HMP 663 Economics of Health Management and Policy II
- Select one of the following courses: 3
  - HMP 603 Organization and Management of Health Care Systems
  - HMP 604 Organization and Management of Health Advocacy and Community-Based Non-profits
- Select one of the following courses: 3
  - HMP 652 Health Law
  - HMP 653 Law and Public Health
  - HMP 684 The Politics of Health Services Policy
  - HMP 685 The Politics of Public Health Policy

**Electives**

**Select one of the following courses:** 3
- BIO 513
- BIO 523

**Select one of the following:** 3
- HMP 644 Applied Health Policy Analysis
- HMP 682 Case Studies in Health Services Administration

**Electives**

Students may choose electives from either the MHSA or MBA programs, but must complete at least 46 credits of MHSA courses and at least 36 credits of MBA courses.

**Total Credit Hours**

82

1 Students who choose HMP 616, HMP 643, HMP 660, or HMP 665 must take additional MBA electives in order to reach the required minimum of 36 MBA credits.

2 Students taking HMP 606 may not enroll in the MBA course ACC 555.

3 Students taking HMP 607 may not enroll in the MBA course FIN 581.

**Breadth Requirements**

- Complete AIM courses in at least 3 different disciplines.
- Complete no more than four AIM, MBA Concentration, and MBA Elective Courses (12 credits) in any single discipline.
- Complete graduate business courses in at least 5 different disciplines.

No single course may be counted toward more than one requirement or concentration in the dual degree program.

**MBA Communication Requirement**

Two, 4-hour workshops in Business Writing and Business Presentation skills are required for the MBA degree.

MBA courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Students may waive any or all of the MBA core courses if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, the GPA in courses taken after the first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Regardless of waiver credit granted, students must earn at least 82 credits in the dual-degree program, including at least 46 credits of MHSA courses and 36 credits of MBA courses. Students must verify the curriculum for the MHSA portion of this dual-degree program with their program advisor in the School of Public Health at UM-Ann Arbor.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Waivers and transfer credit are granted at the discretion of the program faculty.
College of Education, Health, and Human Services

Our Work: Education, Health, and the Human Services

The College of Education, Health, and Human Services aims to prepare and sustain exemplary practitioners and administrators for work in the interrelated fields of education, human health, and human services through an emphasis on scholarship, diversity, inclusion, and excellence in service delivery.

The College draws broadly upon institutional resources including faculty and programs in other colleges of the University. Additionally, facilities in local school districts, health-related settings, public agencies and private corporations regularly provide students with a spectrum of rich experiences.

The College contributes to the University of Michigan-Dearborn’s impact as a dynamic metropolitan university in which teaching and research interact to develop leaders and new knowledge in the tradition of the University of Michigan. Students in CEHHS have the opportunity to participate in many organizations within the College, campus, and community.

History of the College

Shortly after UM-Dearborn opened in 1959, a small teacher certification program was added to the liberal arts division. By 1969 the teacher certification program had grown into one of the largest academic departments on the campus. During 2012-13, the Regents of the University of Michigan authorized the addition of the Department of Health and Human Services (HHS), and the creation of the College of Education, Health, and Human Services (CEHHS).

Graduate Degree Programs

Whether you are looking to develop your teaching skills, prepare for a career in healthcare IT or build your expertise in working with nonprofits, we have the program for you. The College of Education, Health, and Human Services offers a number of master’s degree programs geared towards advancing student knowledge in health- and education-related career fields.

For a listing of graduate offerings and opportunities, see our Graduate Programs page (https://umdearborn.edu/cehhs/graduate-programs/areas-study). Details regarding any of the programs can be found in later sections of this Graduate Catalog.

Admission to the College of Education, Health, and Human Services

UM-Dearborn College of Education, Health, and Human Services prepares students through Master’s degree programs, an Education Specialist degree (Ed.S.) and a Doctorate in Education (Ed.D). More information on graduate level opportunities and admissions information can be found on the Graduate Programs webpage (https://umdearborn.edu/cehhs/graduate-programs/admission).

Office of Student Success

The Office of Student Success for the College of Education, Health, and Human Services is located in 262 FCS. All matters relating to CEHHS student needs including academic advising, field placement, teacher certification, and student records and forms are handled here.

Academic Advising (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising/graduate-advising)

Academic Advising at the graduate level is done by College faculty. Information on graduate level advising at CEHHS can be found on the Graduate Advising (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising/graduate-advising) webpage (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising/graduate-advising). The College has professional Academic Advisors that specialize in CEHHS programs and can help students navigate their coursework and requirements from beginning to end. Students are encouraged to meet with an Academic Advisor at least once a semester to support student success and progress.


Field placement and teacher certification services may be needed for some graduate programs. Field placements allow for each learner to build skills, knowledge, and confidence in his/her own pathway toward becoming a professional educator in real world placements. All required clearances, paperwork, and placements for field assignments are handled within the CEHHS Office of Student Success.

Department of Education

Education is not one career; it is many. Individuals specializing in education are qualified to pursue a wide variety of attractive and rewarding professions including teaching, corporate training, recreation, social service, and childcare. Wherever there is a need for people specifically prepared to teach others, there is a need for individuals with a background in education.

Still, most college graduates seeking a career in education elect to become classroom teachers. Teaching offers a wide choice of opportunities to work with persons of different age levels in a variety of specialized fields. It is a satisfying career for those who like to inspire growth in others and continue their own development.

Students admitted to any of the education programs offered at UM-Dearborn are provided with an academic and professional background suited to the challenges of education in a multicultural society. For
further information, please visit the College of Education, Health, and Human Services website at http://umdearborn.edu/cehhs/.

Accreditation (https://umdearborn.edu/cehhs/departments/education/about/accreditation)
The University of Michigan-Dearborn Teacher Certification program is designed to produce graduates who are knowledgeable in their content areas and their use of pedagogy with diverse learners and who are prepared to become caring and reflective professionals. The Michigan Department of Education approval enables the College to offer programs and make recommendations resulting in state-issued certification of teachers and administrators. Additionally, certification is accredited by the Teacher Education Accreditation Council (TEAC), a subsidiary of the Council for the Accreditation of Educator Preparation (CAEP). This accreditation certifies that the program has provided evidence that it adheres to TEAC’s quality principles. The Early Childhood Education Center is accredited by the National Association for the Education of Young Children (NAEYC).

Master's Programs
Majors
• Community Based Education (p. 518)
• Early Childhood Education (p. 519)
• Education (p. 521)
• Educational Leadership (p. 530)
• Educational Technology (p. 531)
• Health Information Technology (p. 533)
• Program Evaluation and Assessment (p. 534)
• Science Education (p. 534)
• Special Education (p. 535)
• Teaching (p. 537)

Doctorate Program
• Education (p. 527)

Specialist Program
• Education (p. 525)

Certificates
• STEM² Teaching (p. 532)
• Online Teaching (p. 533)
• Teaching English to Speakers of Other Languages (p. 538)

Administration
Janine E. Janosky, PhD, Dean
Laura Reynolds, PhD, Associate Dean
Paul Bielich, MLS, Instructional Learning Manager
Monique Davis, Assistant to the Dean
Becky Dresselhouse-Nauss, BA, Senior Budget Analyst
Judy Garfield, Administrative Assistant, Department of Education
Sharon Harris, Administrative Assistant, Department of Health and Human Services
Donna Kerry, Certification and Field Officer
Jonathan Larson, MA, Academic Advisor
Claudia Lugo-Meeks, MEd, Instructional Learning Assistant
Elizabeth Morden, Customer Service Assistant
Julie Stahl, Administrative Assistant
Lindsey Tarrant, MA, Office of Student Success Supervisor/Academic Advisor
Carolyn Williams, Field Placement Coordinator

Chairs and Directors
Martha A. Adler, Director, Field Placement
Bonnie M. Beyer, Co-Director, EdD, EdS Program
Seong Bock Hong, Director, Early Childhood Program
Stein Brunvand, Director, Masters Degree Programs
Christopher J. Burke, Co-Director, EdD, EdS Program
Susan A. Everett, Chair, Education
Tahnee Prokopow, Director, Health Professions Advising, Pre Professional Health Advisor
Patricia A. Wren, Chair, Health and Human Services

Professors Emeriti
Cepuran, Joseph, PhD, Associate Professor Emeritus of Public Administration
Collin, Claudia, PhD, Assistant Professor Emerita of Education
Kettel, Raymond P., EdD, Associate Professor Emeritus of Education
Lazarus, Belinda, PhD, Professor Emerita of Education
Moyer, Richard, EdD, Professor Emeritus of Science Education
Otto, Charlotte, PhD, Professor Emerita of Chemistry and Education
Poster, John, PhD, Professor Emeritus of Public Administration and Education
Trepanier-Street, Mary, EdD, Professor Emerita of Education
Van Tiem, Darlene, PhD, Associate Professor Emerita of Education
Verhey, Roger, PhD, Professor Emeritus of Education

Faculty
Department of Education
Adler, Martha A., PhD, University of Michigan, Associate Professor of Education
Beyer, Bonnie M., EdD, Vanderbilt University, Professor of Education and Educational Administration
Bock Hong, Seong, EdD, University of Massachusetts Amherst, Professor of Education
Brunvand, Stein, PhD, University of Michigan, Associate Professor of Educational Technology
Burke, Christopher J., PhD, University of Illinois at Urbana-Champaign, Associate Professor of Science Education
DeFauw, Danielle, PhD, Oakland University, Associate Professor of Education
Duran, Mesut, PhD, Ohio University, Professor of Education
Everett, Susan A., PhD, University of Iowa, Professor of Science Education
Fossum, Paul, PhD, University of Minnesota, Professor of Education
Hill, David, PhD, University of Pittsburgh, Assistant Professor of Education
Hill, Kirsten, PhD, Michigan State University, Assistant Professor of Education
Killu, Kim, PhD, Ohio State University, Professor of Education
Luera, Gail R., PhD, University of Michigan, Associate Professor of Science Education
Reynolds, Laura, PhD, University of South Carolina, Associate Professor of Educational Psychology
Shaffer, LaShorage, PhD, University of Illinois at Urbana-Champaign, Assistant Professor of Education
Taylor, Julie, PhD, University of Cambridge, Professor of Education
Thomas-Brown, Karen, PhD, University of the West Indies, Associate Professor of Education

Department of Health and Human Services
Botoseneanu, Anda, PhD, University of Michigan, Assistant Professor of Health Policy Studies
Camp, Jessica, PhD, Wayne State University, Assistant Professor of Social Work
Janosky, Janine E., PhD, University of Pittsburgh, Professor of Health and Human Services
Laws, Terri, PhD, Rice University, Assistant Professor of Health and Human Services and African American Studies
Martin, Lisa, PhD, University of Michigan, Associate Professor of Health Policy Studies and Women's and Gender Studies
Roddy, Juliette K., PhD, Wayne State University, Professor of Health Economics
Sampson, Natalie, PhD, University of Michigan, Assistant Professor of Public Health
Wren, Patricia A., PhD, University of Michigan, Professor of Health and Human Services

Cooperating Faculty
Cengiz-Phippis, Nesrin, PhD, Associate Professor of Mathematics Education
Krebs, Angela, PhD, Associate Professor of Mathematics Education
Nesmith, Judy, MS, Senior Lecturer of Natural Sciences
Rathouz, Margaret, PhD, Associate Professor of Mathematics Education
Shelly, Michael, EdD, Lecturer of Mathematics Education

Early Childhood Education Center Staff
Seong Bock Hong, PhD, Faculty Director
Kathy Filipiak, MA, ZA, BX, Site Director
Marilyn Miller, BA, Early Childhood Educational Special Needs Liaison
LaShorage Shaffer, PhD, Special Needs Consultant
Emily Cooprider, Administrative Assistant
Danielle Camardese, BS, Teacher
Dana Fennessey, BA, Teacher
Caryn Finklestein, MA, Teacher
Rebecca Hall, BA, Teacher
Charlene Hughes, BA, Teacher
Danielle Muehlenbein, BA, Teacher
Adriana Sanchez, BA, Teacher
Aubrey Smith, BA, Teacher
Catie Stone, MA, Teacher

Academic Procedures
- Change of Fees & Refunds (p. 42)
- Add/Drop/Withdrawal (p. 42)
- Class Standing (p. 43)
- Grades & Grading (p. 43)
- Graduation/Application for Diploma (p. 46)
- Registration Information (p. 46)
- Reporting of Grades (p. 46)
- Guidelines for Qualifying for In-State Tuition (p. 46)
- Transcripts (p. 51)
- Tuition Assessment & Fee Regulation (p. 51)
- University Academic Policies (http://catalog.umd.umich.edu/undergraduate/academic-policies)
- Graduate Studies Forms (https://umdearborn.edu/academics/graduate-studies/office-graduate-studies/graduate-studies-forms)

Academic and Professional Standards
All matters in the College of Education, Health, and Human Services having to do with maintaining academic and professional standards can be found on the College's Academic Advising (https://umdearborn.edu/
Policy Changes
College of Education, Health, and Human Services policies change periodically. This occurs when teacher certification and/or graduation requirements are changed by the Michigan Department of Education, by the wider campus community, or by the College of Education, Health, and Human Services itself. It is the responsibility of the student to be aware of graduate program requirements and for meeting appropriate standards. Students are encouraged to review current policies, graduation, and certification requirements with their advisors through required academic advising. For more information please see the College’s Graduate (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising/graduate-advising) Academic Advising (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising) webpage (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising/graduate-advising). (https://umdearborn.edu/cehhs/cehhs-office-student-success/academic-advising/graduate-advising)

Special Facilities and Services
The College of Education, Health, and Human Services is recognized for its concentrated focus in several areas. This concentrated focus is designed to marshal available expertise at the institution in pursuit of regional needs and goals in several particular emphasis areas, including early childhood learning and instruction and inquiry-based science instruction.

• Curriculum Knowledge Center (CKC) (https://umdearborn.edu/cehhs/centers-institutes/curriculum-knowledge-center-ckc)
• Center for Disparity Solutions and Equity (https://umdearborn.edu/cehhs/centers-institutes/center-disparity-solutions-and-equity)
• Early Childhood Education Center (https://umdearborn.edu/cehhs/centers-institutes/ecec)
• The Inquiry Institute (https://umdearborn.edu/cehhs/centers-institutes/inquiry-institute)

Community Based Education
The Masters of Arts in Community Based Education program is designed to serve two related professional fields:

1. individuals working with, and for non-profit organizations engaged in educational outreach and
2. urban teachers who are working to build connections with the community as part of implementing place-based education strategies.

With the development of the new College of Education, Health, and Human Services, there is increased activity in connecting with community organizations as the focus of convergence of education and health/human services has become a core principle of CEHHS. The program will develop leaders who understand how issues of equity and diversity impact both schools and communities. Graduates will be equipped to act as leaders capable of transforming communities engaging local citizens, developing and enacting educational experiences that empower children, youth and adults.

Admission Requirements & Application
Eligibility for regular admission includes:

• Completed application form
• $60.00 application fee
• Official transcript(s) from each college/university attended
• Completion of a bachelor’s degree from an accredited institution
• 3.0 (B) undergraduate/graduate grade point average or better
• Three professional letters of recommendation using required form
• Statement of purpose

Individuals who wish to apply for this program may initiate the application process online at: http://umdearborn.edu/gradapplynow/

Transfer of Credit
A limit of six (6) credit hours can be transferred from a non-University of Michigan school and 15 credit hours of University of Michigan credit that are applicable to the program of study and approved by the program coordinator. Only graduate course credit hours with a grade of B or better (3.0 on a 4.0 point scale) and earned in the five year period prior to acceptance into the program will be considered for transfer. Transfer credits may be requested only after admission to the Master of Arts in the Community Based Education program and successful completion of eight (8) credit hours of letter-graded program coursework. A Request for Transfer of Credit form and official course descriptions and course syllabi must be submitted. Non-letter grades, e.g. pass-fail or satisfactory/unsatisfactory are not eligible for transfer credit. Courses cannot be transferred for credit if: a) they were not graduate level courses; b) they were already applied in whole or in part toward a degree; c) they were taken more than five years before beginning the M.A. in Community Based Education program; or d) a grade below B (3.0 on a 4.0 scale) was earned. Enrolled students must obtain prior approval of the program coordinator to elect classes off campus.

Time Limits
All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

Program of Study
The Master of Arts in Community Based Education (CBE) is a 30 credit hour degree program. A minimum cumulative GPA of B (3.0 on a 4.0 scale) must be maintained to continue enrollment in the program. The CBE requires successful completion of the following courses:

CBE Required Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 515</td>
<td>Comm &amp; Schools: Partnerships</td>
<td>3</td>
</tr>
<tr>
<td>EDA 520</td>
<td>Community Action: Detroit</td>
<td>3</td>
</tr>
<tr>
<td>EDA 521</td>
<td>Comm Based Edu Seminar 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Issues of Practice
Select 2 of the following courses:

- EDC 500 The Human Learner
- EDC 505 Adult Learning: Theory & Practice
- EDC 539 Child Maltreatment and Trauma
Individuals who wish to apply for this program may initiate the process at:

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor's degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- Valid state of Michigan teaching certificate if seeking the Early Childhood (ZS) endorsement

Minimum Grade Point

A cumulative grade point average of 3.0 (B) is required for continuation in the program. Courses in which grades of D, E, or U are earned cannot be used to fulfill degree requirements. Students whose cumulative grade point average falls below a 3.00 (B) will be placed on probation. Continued deficiencies will result in a required withdrawal from the program.

Readmission

Students not registered for classes within one calendar year must submit a readmission form. Approval for readmission must be obtained in order to register for classes.

Residency Requirements and Time Limits

Students seeking a master's degree must fulfill the residency requirement by completing at least one-half of the degree in courses offered by the UM-Dearborn (see Transfer of Credit guidelines below). All coursework toward the master's degree must be completed within five (5) consecutive years from the date of first enrollment in the program.

Transfer of Credit

Students may apply for transfer of credit of a maximum of fifteen semester hours from any University of Michigan campus or six semester hours from another accredited collegiate institution. Only graduate credit hours earned during the last five years that relate to the program and for which a grade of B or better was received can be considered for transfer. Transfer credit can be requested only after admission to the program and completion of eight hours of graduate-level letter graded coursework. Correspondence and extension courses, as well as Continuing Education Units (CEU) are not considered for transfer of credit. All courses to be transferred must be approved by the Director of Masters Degree Programs. A "Request for Transfer of Credit" form and an official copy of the transcript must be submitted. Enrolled students must obtain prior approval of the Director of Masters Degree Programs to elect classes off campus.

Advising

Students must plan their program with their assigned advisor. Contact the College of Education, Health, and Human Services at 313-593-5090 for an advising appointment.

Exit Survey

The purpose of the Exit Survey is to provide the College of Education, Health, and Human Services with valuable information for program evaluation and program development. The completion of the Exit Survey may provide the students with an opportunity for reflection, synthesis and evaluation of their educational experiences at UM-Dearborn.

The Exit Survey is required for program completion, but it is not graded. It is to be completed during the term in which the student is graduating from the program. The Exit Survey Form is available online at:

https://docs.google.com/a/umich.edu/forms/d/18PbL2NwB5UNUfoM-_jiUJOvHbd8dcO3RaEwTu7l0TWs/edit

Early Childhood Education

The Master of Arts in Early Childhood Education includes three program options for teachers, administrators, other service providers and educators who wish to learn how to serve young children and their families. The Early Childhood (ZS) Endorsement and the Early Childhood Special Education Inclusion options are for those who are already certified elementary teachers. The Early Childhood Administration and Leadership option is for non-certified professionals who are interested in early childhood leadership and administration. Courses are offered with the working professional in mind. Most courses required for the master's degree are offered during evening and summer hours and include several online courses.

For additional information visit the College of Education, Health and Human Service's website at:

umdearborn.edu/gradapplynow/

Admission Requirements & Application

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor's degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- Valid state of Michigan teaching certificate if seeking the Early Childhood (ZS) endorsement

For additional information or consult the College of Education, Health, and Human Services web page at: umdearborn.edu/cehhs/cehhs_masters/

PADM 541 Fund Accounting
PADM 548 Fundraising
EDB 507 Strategic Comm for Admin

Issues of Theory

Select 2 of the following courses:

- EDA 501 Adv Social Foundations of Ed
- EDA 620 Public Pedagogy
- EDB 500 Multicult Ed in US Classroom

Issues of Research

EDK 500 Intro to Research in Education
EDB 583 Program Evaluation
or EDA 620 Quantitative Research Methods
or EDA 625 Qualitative Research Seminar

Seminar and Research Project

EDK 680 Individual Res in Education

Total Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PADM 541</td>
<td>Fund Accounting</td>
<td>3</td>
</tr>
<tr>
<td>PADM 548</td>
<td>Fundraising</td>
<td>3</td>
</tr>
<tr>
<td>EDB 507</td>
<td>Strategic Comm for Admin</td>
<td>3</td>
</tr>
<tr>
<td>EDA 501</td>
<td>Adv Social Foundations of Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDA 620</td>
<td>Public Pedagogy</td>
<td>3</td>
</tr>
<tr>
<td>EDB 500</td>
<td>Multicult Ed in US Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDB 583</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>EDA 620/625</td>
<td>Quantitative Research Methods/Qualitative Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EDK 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDK 583</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>

1 EDA 521 is a 1 credit hour course and must be taken 3 times over 3 semesters, for a total of 3 credit hours.

University of Michigan-Dearborn
Graduation

Once students apply to graduate a Degree Works audit will be completed by the Director of Masters Degree Programs. A diploma application must be submitted at the time of registration for the final semester.

Program of Study

The Master of Arts in Early Childhood Education is a 30 credit hour degree program that features three program options for teachers, administrators, or other service providers who wish to serve young children and their families.

Core Courses for All Three Program Options

The core sequence provides continuity and integration for all program options. Ideas of policy, change, growth and diversity are developed in the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 540</td>
<td>Advanced Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDC 645</td>
<td>Transdisc App: Assess/Collab</td>
<td>3</td>
</tr>
<tr>
<td>EDC 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 9

Students are strongly recommended to elect at least one core class during the first year of work. Completion of all core classes is recommended within the first 20 credit hours. All core classes must be elected on the UM-Dearborn campus.

The Master of Arts in Early Childhood Education with the Early Childhood (ZS) Endorsement

The Master of Arts in Early Childhood Endorsement (ZS) program is designed for certified elementary teachers wishing to gain competency in the general and special education of young children birth to eight. This program provides an inquiry-based constructivist early childhood curriculum development and an inclusive trans-disciplinary approach to early childhood education. A minimum of 30 credit hours is required. This program requires fieldwork (EDD 594 Internship) at the UM-Dearborn Early Childhood Education Center during a summer semester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 522</td>
<td>Lead Advoc Admin Early Child</td>
<td>3</td>
</tr>
<tr>
<td>EDC 531</td>
<td>Constructivist Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 542</td>
<td>EC:Fam/Sch/Com Collab Mult Soc</td>
<td>3</td>
</tr>
<tr>
<td>EDC 545</td>
<td>Develop Assess of Young Child</td>
<td>3</td>
</tr>
<tr>
<td>EDD 536</td>
<td>Grad Sem in Early Childhood Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDD 546</td>
<td>Intervention Strat EC Spec Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDD 594</td>
<td>Early Childhood Ed Internship</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 20-21

Note: Undergraduate and graduate transcripts will be evaluated for courses relevant to early childhood education.

To be recommended for the ZS endorsement (Early Childhood Education/General and Special Education), candidates must provide documentation that they have passed the Michigan Teacher Test for Certification (MTEC) Early Childhood Education/General and Special Education examination.

Masters of Arts with Early Childhood Special Education Inclusion

The Master of Arts in Early Childhood Education with Early Childhood Special Education Inclusion is a non-endorsement program for teachers holding an Early Childhood (ZA/ZS) endorsement. The unique internship opportunities offered in partnership with the Early Childhood Education Center and the Oakwood Center for Exceptional Families focus on inclusive early childhood theories and practices. The program provides significant knowledge and skills for teaching children with disabilities using a trans-disciplinary inclusive approach. A minimum of 30 credit hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 531</td>
<td>Constructivist Education</td>
<td>3</td>
</tr>
<tr>
<td>EDC 539</td>
<td>Child Maltreatment and Trauma</td>
<td>3</td>
</tr>
<tr>
<td>EDC 546</td>
<td>Cog/Memory Dev in Children</td>
<td>3</td>
</tr>
<tr>
<td>EDD 536</td>
<td>Grad Sem in Early Childhood Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDD 546</td>
<td>Intervention Strat EC Spec Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDD 650</td>
<td>Internship ECSE</td>
<td>1-3</td>
</tr>
<tr>
<td>PDED 505</td>
<td>Sp Ed Legisltn and Litigation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 19-21

Note: Undergraduate and graduate transcripts will be evaluated for courses relevant to Early Childhood Special Education Inclusion.

Master of Arts in Early Childhood for Early Childhood Administration and Leadership

The Master of Arts in Early Childhood for Early Childhood Administration and Leadership program is designed for non-certified professionals who are interested in early childhood leadership and administration. In the Early Childhood field there is a growing need for administrators and leaders in early childhood. This program will serve professionals (Directors, Education Coordinators and Curriculum Specialists) who need further preparation in supervision, and field experience in administration and leadership. A minimum of 30 credit hours is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 522</td>
<td>Lead Advoc Admin Early Child</td>
<td>3</td>
</tr>
<tr>
<td>EDB 540</td>
<td>School Budgeting and Finance</td>
<td>3</td>
</tr>
<tr>
<td>PDED 505</td>
<td>Sp Ed Legisltn and Litigation</td>
<td>3</td>
</tr>
<tr>
<td>EDC 531</td>
<td>Constructivist Education</td>
<td>3</td>
</tr>
<tr>
<td>EDD 536</td>
<td>Grad Sem in Early Childhood Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDD 537</td>
<td>Administrative Intern in EC</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 20-21

Note: EDD 546 requires a pre-requisite undergraduate course in Teaching Children with Special Needs or elect either EDC 514 or EDC 561 to fulfill the pre-requisite.
Education

In conjunction with the Horace H. Rackham School of Graduate Studies, the College of Education, Health, and Human Services of the UM-Dearborn offers a Master of Arts in Education degree. This is a degree, which is designed for educators who desire to fulfill all requirements for a University of Michigan master's degree, including residency, at UM-Dearborn. Courses are offered in the late afternoon, the early evening, the summer, as well as online, in order to accommodate working students. Classes are taught by the faculty of the College of Education, Health, and Human Services and CASL as well as by selected adjunct faculty who are specialists in their field.

The program is designed for educators, enabling them to (a) strengthen their knowledge of established research and best practices in their specific disciplines; (b) to become reflective, caring, and effective leaders within their respective disciplines at the classroom, school, and/or district level; and, (c) continue to develop their knowledge of research and best practices that lead to effective instructional strategies for all student achievement subject specialization. There are six areas of focus within the program: Education, in which students can design their own focus area of study, Mathematics Education Enhancement and Leadership, TESOL, English as a Second Language, K-8 Mathematics, and Reading Specialist. The last three can also satisfy the State Of Michigan Specialty Area Endorsements. For additional information visit the website at: umdearborn.edu/cehhs/cehhs_maed/.

Rules and Procedures

Since the Master of Arts in Education is authorized through the Horace H. Rackham School of Graduate Studies, it is the responsibility of each graduate student to be thoroughly familiar with the Rackham academic policies which can be found at: www.rackham.umich.edu/policies/ (http://www.rackham.umich.edu/policies)

Admission Requirements & Application

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor's degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- Valid state of Michigan teaching certificate required if seeking an additional endorsement

Individuals who wish to apply for this program may initiate the application process online at: umdearborn.edu/gradapplynow/

Minimum Grade Point

A cumulative grade point average of 3.0 (B) is required for continuation in the program. Courses in which grades of D, E, or U are earned cannot be used to fulfill degree requirements. Students whose cumulative grade point average falls below a 3.00 (B) will be placed on probation. Continued deficiencies will result in a required withdrawal from the Rackham program.

Readmission

Students not registered for classes within one calendar year must submit a readmission form. Approval for readmission must be obtained in order to register for classes.

Residency Requirements and Time Limits

Students seeking a master's degree must fulfill the residency requirement by completing at least one-half of the degree in courses offered by the UM-Dearborn. All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

Transfer of Credits

Students may apply for transfer of credit of a maximum of fifteen semester hours from any University of Michigan campus or six semester hours from another accredited collegiate institution. Only graduate credit hours earned during the last five years that relate to the program and for which a grade of B or better was received can be considered for transfer. Transfer credit can be requested only after admission to the program and completion of eight hours of Rackham graduate-level letter graded coursework. Correspondence and extension courses as well as Continuing Education Units (CEU) are not considered for transfer of credit. All courses to be transferred must be approved by the Director of Masters Degree Programs. A "Request for Transfer of Credit" form and two official copies of the transcript must be submitted. Enrolled students must obtain prior approval of the Director of Masters Degree Programs to elect classes off campus.

Program of Study

This 30 (minimum) semester hour master's degree is divided into three parts: 1) Core Courses, 2) Professional Studies, and 3) Cognate Studies. Considerable flexibility is available in the professional and cognate areas to satisfy individual interests and needs.

Core Courses

The core sequence provides continuity and integration for all programs. Ideas of policy, change, growth and diversity are developed in the following courses.

Nine credit hours in the Core are required for all.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 585</td>
<td>Technology for Administrators</td>
<td>3</td>
</tr>
<tr>
<td>EDA 501</td>
<td>Adv Social Fndations of Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDK 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>9</td>
</tr>
</tbody>
</table>

Professional Studies

The professional studies courses are offered through the College of Education, Health, and Human Services. These courses are to be selected with the advisor’s approval in consideration of the student’s academic background and/or teaching assignments. The number of credits within this category varies.
Cognate Studies

Cognate studies are approved graduate courses offered in the College of Arts, Sciences, and Letters, or College of Business. Courses should be selected with the advisor’s approval in consideration of the student’s academic background and/or teaching assignment.

Professional studies and cognate studies courses may be selected to enhance the student's current areas of specialty in elementary or secondary education or to obtain an additional area of specialization. These courses may be used to add an endorsement to the certificate. If so, students must meet all the State of Michigan and UM-Dearborn certification requirements for that major or minor. Only courses required for the major or minor, which are approved for graduate credit may be applied toward the MA program. Professional and cognate studies courses may also be used toward meeting the requirements for State teaching endorsements.

Details concerning the requirements and the appropriate coursework can be obtained from the student’s assigned advisor or from the College of Education, Health, and Human Services Office of Student Success. A more definitive description of the program is available from the College of Education, Health and Human Service’s web page at: umdearborn.edu/cehhs/cehhs_maed/

Advising

Students must plan their program with their assigned advisor. Contact the College of Education, Health, and Human Services at 313-593-5090 for an advising appointment.

Petition

All graduate policies have been formulated by the Horace H. Rackham Graduate School and by the UM-Dearborn College of Education, Health, and Human Services with the goal toward academic quality. This goal requires that policies be equitably and uniformly applied. However, there may be an infrequent extenuating circumstance that warrants individual consideration. In such a case, a petition to waive or modify a policy may be filed by the graduate student. Please see the Rackham Graduate Secretary for information and forms regarding the petition process.

Exit Survey

The purpose of the Exit Survey is to provide the College of Education, Health, and Human Services with valuable information for program evaluation and program development. The completion of the Exit Survey may provide the students with an opportunity for reflection, synthesis and evaluation of their educational experiences at UM-Dearborn.

The Exit Survey is required for program completion, but it is not graded. It is to be completed during the term in which the student is graduating from the program. The Exit Survey Form is available online at:

https://docs.google.com/a/umich.edu/forms/d/18PbL2NwB5UNUfoM-_JUjOvHbd8dc0N3RaEwTu7IoTWs/edit

Graduation

Once students apply to graduate a Degree Works audit will be completed by the Director of Masters Degree Programs. A diploma application must be submitted at the time of registration for the final semester.

Program Options in the Master of Arts in Education

No Additional Endorsement

A minimum of 30 credit hours required.

I. Core Courses

The core sequence provides continuity and integration for all programs. Ideas of policy, change, growth and diversity are developed in the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Required:</td>
<td></td>
</tr>
<tr>
<td>EDA 501</td>
<td>Adv Social Fndations of Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDK 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>9</td>
</tr>
</tbody>
</table>

Students are strongly encouraged to elect at least one core class during the first year of work. Completion of all core classes is recommended within the first 20 credit hours. All core classes must be elected on the UM-Dearborn campus.

II. Professional Studies

Meet with an Academic Advisor to select graduate level courses from CEHHS 15-18

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 560</td>
<td>Rdg:Diag/Assessment Tech K-12</td>
<td>3</td>
</tr>
</tbody>
</table>

III. Cognates

Meet with an Academic Advisor to select graduate level courses in a discipline other than education 3-6

Mathematics Education Enhancement and Leadership Program

This program welcomes teachers who are certified at the elementary or secondary level with a mathematics endorsement (EX), who are interested in developing additional expertise in the teaching and learning of mathematics across all levels, K-12, and who may in the future seek mathematics education leadership roles in schools or school districts. The program is 30 credit hours and provides stimulating, collegial, research- and practice-based learning centered on national and state frameworks.

I. Core Courses

The core sequence provides continuity and integration for all programs. Ideas of policy, change, growth and diversity are developed in the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required:</td>
<td></td>
</tr>
</tbody>
</table>


EDA 501  Adv Social Fndations of Ed  3
EDC 556  Learning & Classrm Assessment  3
EDK 500  Intro to Research in Education  3

Total Credit Hours  9

Students are strongly encouraged to elect at least one core class during the first year of work. Completion of all core classes is recommended within the first 20 credit hours. All core classes must be elected on the UM-Dearborn campus.

## II. Professional Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDMA 511</td>
<td>Lrn &amp; Tchg Middle Grade Math</td>
<td>3</td>
</tr>
<tr>
<td>EDMA 512</td>
<td>Comm and Assmt in Math Lrng</td>
<td>3</td>
</tr>
<tr>
<td>EDMA 521</td>
<td>Leadership in Mathematics Educ</td>
<td>3</td>
</tr>
<tr>
<td>EDMA 525</td>
<td>Currm Devt &amp; Rsch in Math Ed</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours  12

## III. Cognates

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 542</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 543</td>
<td>Algebra for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 544</td>
<td>Data Anlys,Prob&amp;Stat for Tchrs</td>
<td>3</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Number &amp; Prop1 Rsng for Tchrs</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours  12-15

Candidates who have not completed a college level precalculus or calculus course must do so.

To be recommended for the EX endorsement (teaching middle school mathematics), candidates must provide documentation that they have passed the Michigan Teacher Test for Certification (MTTC) elementary mathematics examination.

## English as a Second Language (NS) Endorsement

This program is designed for teachers who wish to earn the NS (English as a Second Language) endorsement on their teaching certificate. Program coursework is aligned with state and national ESL standards and provides the breadth and depth of knowledge required to effectively teach students whose first language is not English. A minimum of 30 credit hours are required.

### I. Core Courses

The core sequence provides continuity and integration for all programs. Ideas of policy, change, growth and diversity are developed in the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDA 501</td>
<td>Adv Social Fndations of Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>or EDC 560</td>
<td>Rgd Diag/Assessment Tech K-12</td>
<td>3</td>
</tr>
<tr>
<td>EDK 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours  9

Students are strongly encouraged to elect at least one core class during the first year of work. Completion of all core classes is recommended within the first 20 credit hours. All core classes must be elected on the UM-Dearborn campus.
EDK 500  Intro to Research in Education  3
EDC 556  Learning & Classrm Assessment  3
or EDC 560  Rdg:Diag/Assessment Tech K-12  
Total Credit Hours: 9

Students are strongly encouraged to elect at least one core class during the first year of work. Completion of all core classes is recommended within the first 20 credit hours. All core classes must be elected on the UM-Dearborn campus.

II. Professional Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDD 547  Tchng English as Second Lang 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDD 548  Pract: Tch Engl as Secnd Lang</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EDC 555  Assmt: Sec Lang Learning K-12</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours:</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

1 Pre-requisite for EDC 555

III. Cognates

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 574 Second Lang Acquisition:Engl</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LING 580 Concepts in Linguistics 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LING 576 Sociolinguistics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select two:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>EDA 555  Lang,Clture,Litrcy&amp;Power in Ed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or LING 525 Language and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDC 590  Litrcy Instr &amp; Assess for Els</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 561 Modern English Grammar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 582 History of the English Lang</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 584 World Englishes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours:</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

1 Pre-requisite for ENGL 561, 582, 584 and LING 576

To be recommended for the NS endorsement (English as a Second Language), candidates must provide documentation that they have passed the Michigan Teacher Test for Certification (MTTC) ESL test.

Reading Specialist K-12 (BR) Endorsement

The Reading Specialist endorsement prepares teachers with the knowledge and skills essential for working with K-12 students who are below grade level in their literacy skills. This program prepares teachers through instructional, assessment and/or leadership roles at the classroom, school and/or district levels and the endorsement qualifies the candidate to work as a reading specialist in school districts. A minimum of 30 credit hours are required.

I. Core Courses

The core sequence provides continuity and integration for all programs. Ideas of policy, change, growth and diversity are developed in the following courses.

Code     Title                                Credit Hours
Required:                                      
EDA 519  Early Literacy/Language Devel        3
EDB 503  Reading Programs: K-12               3
EDC 560  Rdg:Diag/Assessment Tech K-12        3
EDD 560  Reading:Clinical Pract Int/Sem 1     3
For Holders of Elementary Teaching Certificates:  
EDD 559  Reading in the Content Areas         6
EDC 502  Adol Devl & Classroom Mgmt           6
For Holders of Secondary Teaching Certificates:  
EDD 568  Teach Read/Lang Arts- Elem Grd       6
EDC 540  Advanced Child Development           6
Total Credit Hours:                           24

1 Students must complete EDA 519, EDB 503, EDC 560, and at least 6 additional hours in Core and Professional Studies courses before they will be approved to register for EDD 560.

III. Cognates

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 521 Education and Culture</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LING 525 Language and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LING 561 Modern English Grammar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM 577 Professional Comm Ethics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBR 575 Issues Lit Child/Yng People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 572 Motivation and Behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPEE 530 Small Group Communications</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To be recommended for the BR endorsement (Reading Specialist), candidates must provide documentation that they have passed the Michigan Teacher Test for Certification (MTTC) Reading Specialist test.

Teaching English to Speakers of Other Languages (TESOL)

I. Core Courses

The core sequence provides continuity and integration for all programs. Ideas of policy, change, growth and diversity are developed in the following courses.
Minimum requirements for admission in the EdS program include:

1. A Master's degree from an accredited institution of higher education with at least an overall 3.3 on a four point scale or equivalent.
2. Official copies of transcripts of all undergraduate and graduate coursework.
3. Applicants whose native language is not English must demonstrate English proficiency and are required to provide an official score report of an accepted English Proficiency Test. See umdearborn.edu/684363/ for details.
4. At least three years teaching experience or the equivalent experience working in a professional setting.
5. Three recommendation letters from faculty and/or employer. Standard questions will be asked of all references and may include:
   • Potential for quality doctoral work
   • Potential for leadership impact in the field upon completion of the program
   • Other areas may be included such as: collegiality, ability to complete quality work on time, work etc.
6. A letter or statement of academic interests, professional goals and the applicant’s personal/unique potential for contribution to a student cohort.
7. The application fee is $60.00 USD.

Meeting the minimum requirements qualifies an applicant for admissions consideration but does not guarantee admission to the program. Admissions will be granted on a competitive basis.

Individuals who wish to apply for the Education Specialist may obtain application and recommendation forms from the website at: umdearborn.edu/admissions/graduate/how-apply

Satisfactory Progress Towards a Degree
Each EdS student is expected to maintain satisfactory progress towards the degree by maintaining a "B" average in coursework. Students who fall below a “B” grade point average in any one term will be placed on academic probation and notified of this in writing. Students who do not make satisfactory progress may be removed from the program in writing. Policies established by CEHHS will determine criteria for disqualification from the program.

Readmission
Students not registered for classes within one calendar year must submit a readmission form to the EdS program coordinator. Approval for readmission must be obtained in order to register for classes.

Residency Requirements
Students seeking an EdS degree fulfill the residency requirement by completing at least one-half of their degree in courses offered by the University of Michigan-Dearborn (see Transfer of Credit guidelines below). All coursework toward the Central Office Administration Certificate must be completed within five consecutive years from the date of first enrollment in the program.

Normative Time from Matriculation to Degree
Total registered time in the program is not expected to exceed five years, but an extension can be requested by the student.

II. Professional Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 502</td>
<td>Survey of Educ Tech Tools</td>
<td>3</td>
</tr>
<tr>
<td>EDC 555</td>
<td>Adult Lrning:Theory &amp; Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDA 610</td>
<td>Seminar in Critical Pedagogy</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 555</td>
<td>Lang,Clture,Litrcy&amp;Power in Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDM 505</td>
<td>TESOL Strategies</td>
<td>3</td>
</tr>
<tr>
<td>EDC 555</td>
<td>Assmt: Sec Lang Learning K-12</td>
<td>2</td>
</tr>
<tr>
<td>EDD 547</td>
<td>Tchng English as Second Lang 1</td>
<td>3</td>
</tr>
<tr>
<td>EDD 548</td>
<td>Pract: Tch Engl as Secnd Lang</td>
<td>1</td>
</tr>
</tbody>
</table>

III. Cognates

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 576</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

The Education Specialist (EdS) degree program is designed to meet a critical need for educational leaders who can transform education at the PK-12, community college and university levels. The Education Specialist (EdS) degree is an advanced professional degree program that assists veteran educators to enhance their knowledge of theory and best practice, to acquire skills in interpreting and using educational scholarship and research, and to understand processes of change and leadership in education settings. The degree program is ideal for educators who seek new skills and new opportunities for leadership and for those seeking the Michigan Central Office Administrator Certificate.

Coursework can be completed on either a full or part time basis. Three courses for a total of 9 credits will be in the core areas; an additional 18 credits will be in one of three concentration areas that will specifically target their professional interests. The final 3 credits will focus on an applied studies or research project. The three concentration areas are: Educational Leadership, Metropolitan Education, and Curriculum and Practice.

Admission

Minimum requirements for admission in the EdS program include:
Transfer of Credit

Courses may receive transfer credit if:

- Graduate credits were completed within five years of application to the EdS program at another accredited institution.
- Graduate credits were completed at another University of Michigan School or College (including Flint and Ann Arbor).
- Graduate Extension courses were completed at any of these campuses; the University of Michigan, Wayne State University, Michigan State University, Western Michigan University, Central Michigan University, Eastern Michigan University, Northern Michigan University, and Oakland University.
- Courses were taken at an undergraduate institution, only if students completed the course during their junior or senior year and they were approved for graduate credit by the graduate school of the institution where and when the student took the course; and the courses were not used in whole or in part, in any way, to meet requirements for a degree, and the student’s program adviser approves the transfer of the course.

Up to six credit hours from another (non University of Michigan) accredited university will be accepted as transfer credits; however, the EdS program coordinator must approve the acceptance of transfer credits. Students may transfer up to one-half (1/2) the minimum number of credit hours required for the EdS degree from the Ann Arbor and Flint University of Michigan campuses.

Program of Study

The 30 (minimum) semester hour specialist degree is divided into three parts: 1) Core Courses, 2) Concentration Area Courses, and 3) Research or Applied Studies Project. Considerable flexibility is available in the concentration areas to satisfy individual interests and needs. Courses leading to the Michigan Department of Education Central Office Administrator Certificate are available to students who choose the Educational Leadership concentration.

Core Courses

The core courses are designed to provide students with a global perspective of education in contemporary schools and to prepare them for higher-level courses in the specialization area.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 740</td>
<td>Seminar in Ed Psych/Spec Educ</td>
<td>6</td>
</tr>
<tr>
<td>EDB 722</td>
<td>Seminar in Educ Leadership</td>
<td></td>
</tr>
<tr>
<td>EDD 717</td>
<td>Sem in Curriculum and Practice</td>
<td></td>
</tr>
<tr>
<td>EDA 725</td>
<td>Seminar in Metropolitan Educ</td>
<td></td>
</tr>
</tbody>
</table>

Select one: (3)

- EDK 823 Quantitative Research Methods
- EDK 825 Qualitative Research Seminar

Total Credit Hours 9

Note: An Introduction to Research course must have been completed and credited on graduate transcript to enroll in one of the above research courses or must be completed prior to enrolling in EDK 823 or EDK 825.

Concentration Area Courses (18 hrs)

Six specialist level courses must be selected in the area of concentration with the guidance of the student’s respective EdS program advisor. The professional studies courses are offered through the College of Education, Health, and Human Services and other units of the University. Students will work with their faculty advisor to determine which concentration area courses are appropriate to the student’s needs and professional goals.

Action Research Studies (3 hrs)

Students will complete an action research project with approval of their advisor following successful completion of the core and concentration area courses.

Central Office Administration Certificate Program

The Central Office Administration Certificate Program is designed to prepare students for roles in PK-12 school district central office administration/leadership. The program is approved by the Michigan Department of Education and meets MDE Standards for the Preparation of Central Office Administrators. Upon successful completion of the program, students will be eligible for recommendation to the Michigan Department of Education for the Central Office Administration Certificate.

The Central Office Administration Certificate Program can be obtained in one of the three following ways:

- In conjunction with the Education Specialist (Ed.S.) degree program,
- In conjunction with the Education Doctoral (Ed.D.) degree program,
- As a stand-alone certificate.

The program curriculum emphasizes the knowledge and skill base required to meet the opportunities and challenges of central office leadership in PK-12 school systems. The courses are designed to develop educational leadership competency and skills in organizational development, labor relations, human resource development, strategic planning, applications of technology, policy development, school community relations, data analysis, legal and regulatory issues, and evaluation of programs. An internship in central office administration is required in the final year of the program. Courses are offered in the evening, on-line, and Saturdays to accommodate the working professional.

Admission Requirements

Eligibility for admission to the Central Office Administration Certificate program requires a bachelor’s degree from an accredited college or university with an undergraduate GPA of 3.0 or better on a 4.0 scale, a valid elementary or secondary teaching certificate, a minimum of three years classroom teaching experience, completion of a master’s degree in educational administration/leadership with a GPA of 3.3 or better on a 4.0 scale, and a valid K-12 school administration certificate. Upon successful completion of the program, students will be eligible for recommendation to the Michigan Department of Education for the Michigan Department of Education Central Office Administrator Certificate.
Application Process

Formal application to the Central Office Administration Certificate Program must be submitted to the College of Education, Health, and Human Services Educational Leadership Program. Applications are available on-line at the College of Education, Health, and Human Services web site or can be obtained at the College of Education, Health, and Human Services Office of Student Success. Applications should be completed and submitted to the College of Education, Health, and Human Services Office of Student Success along with the following supporting materials:

1. Official copy of the applicant’s baccalaureate degree transcript;
2. Official copy of the applicant’s master’s degree transcript;
3. Official transcripts from all other colleges or universities attended;
4. A copy of the applicant’s current Michigan Teaching Certificate;
5. A copy of the applicant’s current Michigan School Administrator Certificate;
6. Three letters of recommendation attesting to the applicant’s quality level of graduate work, potential for leadership impact in the field upon completion of the program, and other area related to ability to complete the program;
7. A one page Statement of Purpose including academic interests, professional goals, and personal/unique potential for contribution to the field of central office administration;
8. A $60.00 non-refundable application fee.

The Statement of Purpose should be a concise, well written essay addressing applicant’s educational background, academic interests, career goals, and service to PK-12 schools. For answers to specific questions regarding the program or application process, applicants are invited to contact the Office of Student Success at 313-593-5090.

Transfer of Credit

A limit of six (6) credit hours that are applicable to the program of study and approved by the program coordinator can be transferred from a non-University of Michigan accredited college or university. Only graduate course credit hours with a grade of B or better (3.0 on a 4.0 point scale) and earned in the five year period prior to acceptance into the program will be considered for transfer. Transfer credits may be requested only after admission to the Central Office Administration Certificate program and successful completion of six (6) credit hours of letter-graded program coursework. A Request for Transfer of Credit form and official course descriptions and course syllabi must be submitted. Non-letter grades, e.g. pass-fail or satisfactory/unsatisfactory are not eligible for transfer credit. Courses cannot be transferred for credit if: a) they were not graduate level courses; b) they were already applied in whole or in part toward a degree; c) they were taken more than five years before beginning the certificate program; or d) a grade below B (3.0 on a 4.0 scale) was earned. Enrolled students must obtain prior approval of the program coordinator to elect classes off campus.

Residency Requirements and Time Limits

Students seeking a Central Office Administration Certificate fulfill the residency requirement by completing at least one-half of their degree in courses offered by the University of Michigan-Dearborn (see Transfer of Credit guidelines). All coursework toward the Central Office Administration Certificate must be completed within six consecutive years from the date of first enrollment in the program. Students whose grade point average falls below a B (3.0 on a 4.0 scale) will be placed on probation. Continued deficiencies will result in a required withdrawal from the program.

Coursework

A minimum cumulative GPA of B (3.0 on a 4.0 scale) must be maintained to continue enrollment in the program. Candidates must hold a valid and current elementary or secondary teaching certificate and a valid and current school administrator certificate. The program requires successful completion of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 721</td>
<td>Central Office Internship</td>
<td>2-3</td>
</tr>
<tr>
<td>EDB 722</td>
<td>Seminar in Educ Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDB 724</td>
<td>Superintendency</td>
<td>3</td>
</tr>
<tr>
<td>EDB 725</td>
<td>Leadership Ethics</td>
<td>3</td>
</tr>
<tr>
<td>EDB 762</td>
<td>Labor Rel in School Setting</td>
<td>3</td>
</tr>
<tr>
<td>EDB 807</td>
<td>Strategic Comm for Admin</td>
<td>3</td>
</tr>
<tr>
<td>EDB 861</td>
<td>Organization Dev &amp; Theory</td>
<td>2-3</td>
</tr>
<tr>
<td>EDB 881</td>
<td>Strategic Ping/Needs Assess</td>
<td>2,3</td>
</tr>
<tr>
<td>EDB 882</td>
<td>Policy Analysis &amp; Development</td>
<td>3</td>
</tr>
<tr>
<td>EDT 785</td>
<td>Technology for Administrators</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 27-30

The Internship in Central Office Administration requires sustained practice in multiple central office positions under the mentorship of a practicing central office administrator. This program remains under on-going review to insure quality and compliance with University and Michigan Department of Education standards and requirements. Contact the Office of Student Success at 313-593-5090 for additional information or consult the College of Education, Health, and Human Services web page at: umdearborn.edu/cehhs/cehhs_eds_ed_leadership/

Advising

Students must plan their program with their assigned advisor or with the EdS Program Coordinator. Contact the College of Education, Health, and Human Services at 313-593-5090 for an advising appointment.

Petition

All graduate policies have been formulated by the UM-Dearborn College of Education, Health, and Human Services with the goal toward academic quality. This goal requires that policies be equitably and uniformly applied. However, there may be an infrequent extenuating circumstance that warrants individual consideration. In such a case, a petition to waive or modify a policy may be filed by the specialist student. Please contact the Office of Student Success for information and forms regarding the petition process.

Graduation

A diploma application must be submitted at the time of registration for the final semester.

The Doctorate in Education (Ed.D.) degree is designed for working professionals who aspire to be leaders in education. Students will complete 60 credit hours beyond a Master’s degree in course and field work that lead to the Ed.D. degree. Coursework can be completed on either a full or part time basis. Eight classes for a total of 24 credits will be in the core areas; an additional 24 credits will be in one of three concentration areas that will specifically target students’ professional
interests. The final 12 credits will focus on dissertation research or an applied studies project. The three concentration areas are: Educational Leadership, Metropolitan Education, and Curriculum and Practice.

**Admission**

Minimum requirements for admission in the Ed.D. program include:

1. Completion of a master’s degree from an accredited institution. Official copies of transcripts of all undergraduate and graduate coursework.
2. Applicants whose native language is not English must demonstrate English proficiency and are required to provide an official score report of an accepted English Proficiency Test. See umdearborn.edu/684363/ for details.
3. Applicants must submit scores on the analytical, quantitative and verbal tests of the Graduate Record Examinations (GRE). Scores may not be more than five years old.
4. At least three years teaching experience or the equivalent experience working in a professional setting.
5. Three recommendation letters from faculty and/or employers. Standard questions will be asked of all references and may include:
   - Potential for quality doctoral work
   - Potential for leadership impact in the field upon completion of the program
   - Other areas may be included such as: collegiality, ability to complete quality work on time, work etc.
6. A letter or statement of academic interests, professional goals and the applicant’s personal/unique potential for contribution to a doctoral cohort.
7. Applications are due annually on March 1 in order to be considered for admission in the Ed.D. program. Applicants may be interviewed by the Ed.D. committee as part of the selection process.
8. The application fee is $60.00 USD.

Once applicants have met all of the admissions requirements through step 8 they may be contacted to arrange for a personal interview with a member of the Ed.D. Faculty Advisory Committee. The interview may be conducted over the telephone or via Skype for students traveling from out of state. During the interview, the applicant can be expected to demonstrate evidence of personal commitment to earn a doctoral degree, evidence of personal professional goals that are aligned with the goals of the Ed.D. program and evidence of professional behavior.

Meeting the minimum requirements qualifies an applicant for admissions consideration but does not guarantee admission to the program. Admissions will be granted on a competitive basis.

Individuals who wish to apply for the Doctorate in Education may obtain application and recommendation forms from the website at: umdearborn.edu/cehhs/cehhs_edd/

**Satisfactory Progress Towards Degree**

Each doctoral student is expected to maintain satisfactory progress towards the degree by maintaining a "B" average in coursework and passage of all required examinations within two attempts. Students who fall below a "B" grade point average in any one term will be placed on academic probation and notified of this in writing. Students who do not make satisfactory progress may be removed from the program in writing.

CEHHS and the EdD Faculty Advisory Committee will determine criteria for disqualification from the program.

**Readmission**

Students not registered for classes within one calendar year must submit a readmission form to the doctoral program coordinator. Approval for readmission must be obtained in order to register for classes.

**Residency Requirements**

While there will be no formal residency requirement for part-time students, it is expected that they will participate in doctoral program activities on campus or through online discussions. This involvement will foster intellectual development and provide a supportive environment for all program participants.

**Normative Time from Matriculation to Degree**

The Ed.D. program is designed for completion of the degree requirements at a minimum of three calendar years. However, circumstances may require students to take fewer courses each term. As a result, flexibility is built into the program. Total time to qualifying examination and advancement to candidacy should not normally exceed three years, but students can request additional time. A request for extension needs to be submitted to the Ed.D. Faculty Advisory Committee.

Total registered time in the program is not expected to exceed six years, but again, an extension can be requested by the student.

**Transfer of Credit**

Courses may receive transfer credit if:

- Graduate credits were completed within five years of application to the Ed.D. program at another accredited institution.
- Graduate credits were completed at another University of Michigan School or College (including Flint and Ann Arbor).
- Graduate Extension courses were completed at any of these campuses; the University of Michigan, Wayne State University, Michigan State University, Western Michigan University, Central Michigan University, Eastern Michigan University, Northern Michigan University, and Oakland University.
- Courses were taken at an undergraduate institution, only if students completed the course during their junior or senior year and they were approved for graduate credit by the graduate school of the institution where and when the student took the course; and the courses were not used in whole or in part, in any way, to meet requirements for a degree, and the student’s doctoral program adviser approves the transfer of the course.

Up to six credit hours from another (non University of Michigan) accredited university will be accepted as transfer credits; however, the Ed.D. advisor must approve the acceptance of transfer credits. Students may transfer up to one-half (1/2) the minimum number of credit hours required in the coursework for the core and concentration classes in the Ed.D. degree from the Ann Arbor and Flint University of Michigan campuses.

**Program of Study**

The 60 (minimum) credit hour doctoral degree is divided into three parts: 1) Core Courses, 2) Concentration Area Courses, and 3) Dissertation
Research or Applied Studies Project. Considerable flexibility is available in the concentration areas to satisfy individual interests and needs.

**Core Courses**
The core courses are designed to provide students with a global perspective of education in contemporary schools and to prepare them for higher-level courses in the specialization area.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 725</td>
<td>Seminar in Metropolitan Educ</td>
<td>3</td>
</tr>
<tr>
<td>EDB 722</td>
<td>Seminar in Educ Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDC 740</td>
<td>Seminar in Ed Psych/Spec Educ</td>
<td>3</td>
</tr>
<tr>
<td>EDD 717</td>
<td>Sem in Curriculum and Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDK 700</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDK 823</td>
<td>Quantitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>EDK 825</td>
<td>Qualitative Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EDK 850</td>
<td>Resrch Dagn &amp; Proposal Dvlpmt</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 24

All eight core courses or their equivalent must be completed. Any substitution of course(s) for a core course(s) must be approved in writing by the doctoral program advisor before the qualifying exam.

**Concentration Area Courses (24 hrs)**
Eight graduate/doctorate level courses must be selected in the area of concentration with the written approval of the student’s Ed.D. program advisor. The concentration area courses are offered through the College of Education, Health, and Human Services and other units of the University. Students will work with their advisor to determine which concentration area courses are appropriate to the students’ needs and professional goals.

**Qualifying Examination**
The qualifying examination is generally taken one semester after the completion of course work upon recommendation of the student’s advisor. Students must be at a point in their studies where students’ mastery of the core course work and concentration area can be fairly evaluated. The qualifying exam will be a written assessment of student knowledge.

Unanimous agreement of the qualifying examination committee is required for the student to pass the examination. Students who do not pass on the first attempt have only one other opportunity to take the examination. At least three months must pass between the second attempt and no more than one calendar year. The committee may suggest additional coursework to address weak areas.

**Proposal Defense**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDK 990</td>
<td>Ed.D. Prelim Exam/Proposal</td>
<td>3-6</td>
</tr>
</tbody>
</table>

The proposal defense is taken after students have successfully completed their coursework. The proposal defense is a hearing on the student’s proposal. Typically the same review team for the qualifying examination is used for the entire Dissertation or Applied Studies Committee who must be present during the proposal defense and approve the proposal unanimously.

Although the examination is usually an oral hearing, the committee may require that students respond in writing to questions and/or make revisions in their proposals as a condition of approval. If the student is required to resubmit the proposal, the committee will review the revised proposal and communicate the outcome to the student in writing. The student must receive written approval of the proposal by the committee and written notification by the Institutional Review Board that human subjects review requirements have been met before beginning dissertation or applied studies work.

The proposal must demonstrate a strong scholarly and professional foundation of knowledge and the ability to apply the knowledge to rigorous study of an issue in K-12, community college, or university level education. The student must submit the dissertation or applied studies proposal for approval following the format and procedures established by the Ed.D. Faculty Advisory Committee. At a minimum, the proposal will contain a description of the problem, a review of the relevant literature, a statement of the question being answered and a description of the research methodology or approach taken to address the question. The proposal must also contain the materials that have been or will be submitted to the Institutional Review Board to meet human subjects requirements.

**Dissertation/Applied Studies**
Following successful completion of the qualifying exam and proposal defense, the focus will be on the preparation for the dissertation research or applied studies project. This culminating work may focus on a wide range of topics and/or research methods. Whether the candidate decides to do a dissertation or applied studies project, the work will focus on a significant professional problem or issue and have the potential to contribute in a general way or in the context of a particular educational setting to the improvement of PK-12, community college, or university level education.

**Candidacy**
A student will become a candidate for the Ed.D. degree after completing the required coursework with a minimum GPA of B and after passing the qualifying examination and proposal defense. At this point, the student will be allowed to pursue the dissertation or applied studies work.

**Dissertation/Applied Studies Project (9 hrs)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDK 995</td>
<td>Ed.D. Dissertation/Appl Study</td>
<td>3-9</td>
</tr>
</tbody>
</table>

The student must submit a written copy of the dissertation or applied studies project to the dissertation/applied studies committee for approval before the oral defense will be scheduled. All members of the dissertation or applied studies committee are responsible for reading the dissertation or applied studies documents and submitting their written evaluations to the committee chair at least one week prior to the defense.

**Oral Defense of Dissertation/Applied Studies Project**
The final oral examination is the candidate’s defense of the dissertation or applied studies project. The dissertation/applied studies committee members conduct the oral examination. The final oral examination will be open to other faculty, students and interested public. The dissertation/applied studies committee members must be present at the oral defense.
Unanimous agreement of the committee is required for approval of the dissertation/applied study and recommendation that the Ed.D. degree be awarded. If the committee requires substantive changes to the written project, the final vote of the committee will be postponed until after the changes are completed.

**Submission of the Written Dissertation/Project**

The dissertation/applied studies project must be submitted to the program director by a specified deadline in the semester in which the degree is conferred.

The dissertation/applied studies project must conform to UM-Dearborn approved dissertation/applied studies manuscript guidelines.

**Advising**

Students must plan their program with their assigned advisor or with the Doctoral Program Coordinator. Contact the College of Education, Health, and Human Services at (313) 593-5090 for an advising appointment.

**Petition**

All graduate policies have been formulated by the UM-Dearborn College of Education, Health, and Human Services Ed.D. Faculty Advisory Committee with the goal toward academic quality. This goal requires that policies be equitably and uniformly applied. However, there may be an infrequent extenuating circumstance that warrants individual consideration. In such a case, a petition to waive or modify a policy may be filed by the doctoral student. Please contact the Office of Student Success for information and forms regarding the petition process.

**Graduation**

A diploma application must be submitted at the time of registration for the final semester.

**Educational Leadership**

The Master of Arts in Educational Leadership is designed to prepare students for roles in PK-12 school leadership. The program is approved by the Michigan Department of Education and meets MDE Standards for the Preparation of School Principals. Successful program completers are eligible, upon recommendation by the College of Education, Health, and Human Services, to apply for the Michigan Department of Education School Administrator Certificate.

The MAEL curriculum emphasizes the knowledge and skill base required to meet the opportunities and challenges of PK-12 school administration. The courses are designed to develop educational leadership competency and skills in organizational administration, curriculum development, instructional leadership, personnel, finance, applications of technology, school community relations, data analysis, legal and regulatory issues, and program evaluation. An internship in educational administration is required in the final year of the program. Courses are offered in the evening, online, and Saturdays to accommodate the working professional.

**Admission Requirements**

Eligibility for regular admission includes:

- Completed application form

- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor’s degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- State of Michigan Teaching Certificate

Individuals who wish to apply for this program may initiate the application process online at umdearborn.edu/gradapplynow/

**Transfer of Credit**

A limit of six (6) credit hours can be transferred from a non-University of Michigan school and 15 credit hours of University of Michigan credit that are applicable to the program of study and approved by the program coordinator. Only graduate course credit hours with a grade of B or better (3.0 on a 4.0 point scale) and earned in the five year period prior to acceptance into the program will be considered for transfer. Transfer credits may be requested only after admission to the Master of Arts in Educational Leadership program and successful completion of six (6) credit hours of letter-graded program coursework. A Request for Transfer of Credit form and official course descriptions and course syllabi must be submitted. Non-letter grades, e.g. pass-fail or satisfactory/unsatisfactory are not eligible for transfer credit. Courses cannot be transferred for credit if: a) they were not graduate level courses; b) they were already applied in whole or in part toward a degree; c) they were taken more than five years before beginning the MAEL program; or d) a grade below B (3.0 on a 4.0 scale) was earned. Enrolled students must obtain prior approval of the program coordinator to elect classes off campus.

**Time Limits**

All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

**Program of Study**

The Master of Arts in Educational Leadership (MAEL) is a 33 credit hour degree program. A minimum cumulative GPA of B (3.0 on a 4.0 scale) must be maintained to continue enrollment in the program. Candidates must hold a valid elementary or secondary teaching certificate. The MAEL requires successful completion of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 505</td>
<td>Intro to Educ Administration</td>
<td>3</td>
</tr>
<tr>
<td>EDB 501</td>
<td>Leadership and Administration</td>
<td>3</td>
</tr>
<tr>
<td>EDB 540</td>
<td>School Budgeting and Finance</td>
<td>3</td>
</tr>
<tr>
<td>EDB 560</td>
<td>Admin of Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>EDB 583</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>EDB 502</td>
<td>School and Community Relations</td>
<td>3</td>
</tr>
<tr>
<td>EDB 523</td>
<td>Legal and Reg Issues in Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDB 586</td>
<td>Curriculum Delib and Develop</td>
<td>3</td>
</tr>
<tr>
<td>EDT 585</td>
<td>Technology for Administrators</td>
<td>3</td>
</tr>
<tr>
<td>EDB 720</td>
<td>Internship 1</td>
<td>1-3</td>
</tr>
<tr>
<td>EDB 720</td>
<td>Internship 1</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 29-33
Certificate program and successful completion of six (6) credit hours of letter-graded program coursework. A Request for Transfer of Credit form and official course descriptions and course syllabi must be submitted. Non-letter grades, e.g. pass-fail or satisfactory/unsatisfactory are not eligible for transfer credit. Courses cannot be transferred for credit if:

1. They were not graduate level courses;
2. They were already applied in whole or in part toward a degree;
3. They were taken more than five years before beginning the School Principal Certificate program;
4. A grade below B (3.0 on a 4.0 scale) was earned.

Enrolled students must obtain prior approval of the program coordinator to elect classes off campus.

School Principal Certificate Program

The School Principal Certificate is part of the 33 credit hour MAEL degree program. A minimum cumulative GPA of B (3.0 on a 4.0 scale) must be maintained to continue enrollment in the program. Candidates must hold a valid elementary or secondary teaching certificate. The certificate program requires successful completion of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB 505</td>
<td>Intro to Educ Administration</td>
<td>3</td>
</tr>
<tr>
<td>EDB 501</td>
<td>Leadership and Administration</td>
<td>3</td>
</tr>
<tr>
<td>EDB 540</td>
<td>School Budgeting and Finance</td>
<td>3</td>
</tr>
<tr>
<td>EDB 560</td>
<td>Admin of Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>EDB 583</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>EDB 502</td>
<td>School and Community Relations</td>
<td>3</td>
</tr>
<tr>
<td>EDB 523</td>
<td>Legal and Reg Issues in Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDB 586</td>
<td>Curriculum Delib and Develop</td>
<td>3</td>
</tr>
<tr>
<td>EDT 585</td>
<td>Technology for Administrators</td>
<td>3</td>
</tr>
<tr>
<td>EDB 720</td>
<td>Internship 1</td>
<td>1-3</td>
</tr>
<tr>
<td>EDB 720</td>
<td>Internship 1</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Total Credit Hours 29-33

1. This internship must be repeated for up to a total of 6 credit hours.

This program remains under on-going review to insure quality and compliance with University and Michigan Department of Education standards and requirements. Contact the Office of Student Success at 313-593-5090 for additional information or consult the College of Education, Health, and Human Services web page at: umdearborn.edu/cehhs/cehhs_mael/

Residency Requirements and Time Limits

Students seeking a School Principal Certificate must fulfill the residency requirement by completing at least one-half of their degree in courses offered by the University of Michigan-Dearborn. All coursework toward the School Principal Certificate must be completed within five consecutive years from the date of first enrollment in the graduate program. Students whose grade point average falls below a B (3.0 on a 4.0 scale) will be placed on probation. Continued deficiencies will result in a required withdrawal from the certificate program.

Educational Technology (EDET)

The Masters of Arts in Educational Technology program is designed for educators interested in developing expertise in the effective use of various forms of educational technology in teaching and learning. The program can be completed fully online and offers professionals advanced knowledge in a broad range of educational technologies. In addition, students will learn how to integrate technology across the curriculum in face-to-face, hybrid and online settings. Individuals who teach in K-12 schools, colleges and universities, private industry and other instructional settings will find this program useful for increasing their overall effectiveness in the field of educational technology and their ability to utilize proven pedagogical practices.

Admission Requirements & Application

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor’s degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- Valid state of Michigan teaching certificate if seeking the Educational Technology endorsement

Individuals who wish to apply for this program may initiate the application process online at: umdearborn.edu/gradapplynow/

Transfer of Credit

A limit of six (6) credit hours can be transferred from a non-University of Michigan school and 15 credit hours of University of Michigan credit that are applicable to the program of study and approved by the program coordinator. Only graduate course credit hours with a grade of B or better (3.0 on a 4.0 point scale) and earned in the five year period prior to acceptance into the program will be considered for transfer. Transfer credits may be requested only after admission to the Master of Arts in Educational Technology program and successful completion of eight (8) credit hours of letter-graded program coursework. A Request for Transfer form and official course descriptions and course syllabi must be submitted.
of Credit form and official course descriptions and course syllabi must be submitted. Non-letter grades, e.g. pass-fail or satisfactory/unsatisfactory are not eligible for transfer credit. Courses cannot be transferred for credit if: a) they were not graduate level courses; b) they were already applied in whole or in part toward a degree; c) they were taken more than five years before beginning the EDET program; or d) a grade below B (3.0 on a 4.0 scale) was earned. Enrolled students must obtain prior approval of the program coordinator to elect classes off campus.

**Time Limits**

All coursework toward the master's degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

**Program of Study**

The Master of Arts in Educational Technology (EDET) is a 30 credit hour degree program. A minimum cumulative GPA of B (3.0 on a 4.0 scale) must be maintained to continue enrollment in the program. The EDET requires successful completion of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 501</td>
<td>Rsrch, Trnds&amp;Iss in Ed Tchnlgy</td>
<td>3</td>
</tr>
<tr>
<td>EDT 502</td>
<td>Survey of Educ Tech Tools</td>
<td>3</td>
</tr>
<tr>
<td>EDT 510</td>
<td>Teaching with Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDT 514</td>
<td>Application of Instl Design</td>
<td>3</td>
</tr>
<tr>
<td>EDT 520</td>
<td>Intro to Teaching/Learn Online</td>
<td>3</td>
</tr>
<tr>
<td>EDT 522</td>
<td>Educating the Digital Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDT 531</td>
<td>Lead. &amp; Prof. devel in Ed Tech</td>
<td>3</td>
</tr>
</tbody>
</table>

**Foundational Masters Classes**

Select 3 courses: 9

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 501</td>
<td>Adv Social Fndations of Ed</td>
</tr>
<tr>
<td>EDC 505</td>
<td>Adult Lming:Theory &amp; Practice</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
</tr>
<tr>
<td>EDC 560</td>
<td>Rdg:Diag/Assessment Tech K-12</td>
</tr>
<tr>
<td>EDF 500</td>
<td>Intro to Research in Education</td>
</tr>
<tr>
<td>EDT 530</td>
<td>Assistive Technology</td>
</tr>
</tbody>
</table>

**STEM² Teaching Certificate**

The Graduate Certificate of STEM² Teaching is designed to enhance students’ content knowledge in science, technology, engineering, mathematics and medicine, to use best pedagogical practices for teaching K-12 STEM² lessons, and to successfully integrate the STEM² disciplines into lessons and units.

While the Graduate Certificate of STEM² Teaching is a 'stand alone' certificate that does not lead to a state endorsement, it creates an opportunity for graduate students to learn about STEM² for those who teach in schools, work in other areas of education such as museums, or provide outreach to K-12 students.

Holders of the certificate may become leaders in their schools or school districts in adopting STEM² programs or may serve as a resource for other teachers who wish to integrate STEM² activities into the curricula.

The UM-Dearborn certificate requires students to elect 12-13 hours of graduate level credits. Students will have several options depending on their science and mathematics background.

**Time Limits**

Students must complete the certificate program within three years, from the date of first enrollment.

**Admission Requirements**

All applicants must submit evidence of each of the following to the Office of Student Success along with a completed Post-Degree Application Form found at: umdearborn.edu/cehhs/grad-stemm-cert/

- Completion of a bachelor’s degree at an accredited institution.
- A 3.0 or higher grade point average (GPA is based on a 4.0).
- An official transcript from college or university granting the undergraduate degree and one from each college or university attended.
- Submit a completed Post-Degree Application Form and non-refundable $30.00 application fee (payable by check or money order to University of Michigan-Dearborn). This fee is waived for applicants who have previously paid an application fee to any University of Michigan campus.

**Minimum Grade Point**

- Completion of the required coursework with a GPA of at least 3.0

For more information, call 313-593-5090 or visit: umdearborn.edu/cehhs/grad-stemm-cert/

**STEM² Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPS 500</td>
<td>STEM2 Teaching and Learning</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one Natural Sciences course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 531</td>
<td>Adv Learning Inquiry: Phys Sci</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 532</td>
<td>Adv Inquiry: Earth/Planet Sci</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 533</td>
<td>Adv Inquiry: Life Science</td>
<td>3</td>
</tr>
</tbody>
</table>

or other graduate level Natural Sciences course

Select one Mathematics course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 545</td>
<td>Number &amp; Prop1 Rsng for Tchers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 546</td>
<td>Discrete Math/Modeling for Tch</td>
<td>3</td>
</tr>
<tr>
<td>MATH 549</td>
<td>Concepts of Calc for Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one credit from a Teacher Academy: PdEd 518 Integrating Engineering Topics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 550</td>
<td>Hlth, Nutr, &amp; PE/Clsrn Tchers</td>
<td>2</td>
</tr>
<tr>
<td>HPS 530</td>
<td>Health Behavior &amp; Health Educ</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 12-13
Transfer of Credit
A student may transfer in up to six (6) credit hours of graduate credit from the University of Michigan-Dearborn or another accredited institution provided the credits have not previously been applied to another degree or certificate. Credit hours transferred from other institutions must be taken within 5 years before enrollment with a grade of B or better.

Health Information Technology
The Master of Science in Health Information Technology (HIT) is designed for professionals in either health or information technology who are seeking masters level specialization in information systems dedicated to healthcare. The degree emphasizes data management, financial systems, and information security as well as treatment progress, patient management and outcome measurement.

The program prepares graduates for mid-level positions in hospital information technology departments, community health care clinics’ medical records departments, public health agencies, government health departments (federal, state and local), research departments for medical and health schools. The degree consists of 30 semester hours, available to both full and part-time students, and courses are scheduled during the late afternoon and evening sessions to accommodate the working professional. Summer course work is also available.

Admission Requirements & Application
Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor’s degree
- 3.0 (B) undergraduate/graduate grade point average or better
- Three letters of recommendation using required form
- Statement of purpose

Individuals who wish to apply for this program may initiate the application process online at: umdearborn.edu/gradapplynow/

Minimum Grade Point
A cumulative grade point average of 3.0 (B) is required for continuation in the program. Courses in which grades of D, E, or U are earned cannot be used to fulfill degree requirements. Students whose cumulative grade point average falls below a 3.00 (B) will be placed on probation. Continued deficiencies will result in a required withdrawal from the program.

For more information, call the Office of Student Success at 313-593-5090 or visit: umdearborn.edu/cehhs/cehhs_m_hit/

Time Limits
All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 525</td>
<td>Enterprise Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 564</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 575</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 556</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 641</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 527</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 642</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 544</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 650</td>
<td>Economics of Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HIT 500</td>
<td>Management of Healthcare Data</td>
<td>3</td>
</tr>
<tr>
<td>HIT 520</td>
<td>Clinical &amp; Evidence Based Med</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>CIS 525</td>
<td>Web Technology</td>
<td></td>
</tr>
<tr>
<td>CIS 562</td>
<td>Web Information Management</td>
<td></td>
</tr>
<tr>
<td>CIS 568</td>
<td>Data Mining</td>
<td></td>
</tr>
<tr>
<td>CIS 571</td>
<td>Web Services</td>
<td></td>
</tr>
<tr>
<td>DS 520</td>
<td>Applied Statistical Modeling</td>
<td></td>
</tr>
<tr>
<td>HHS 690</td>
<td>Graduate Research</td>
<td></td>
</tr>
<tr>
<td>HHS 691</td>
<td>Topics in Health IT</td>
<td></td>
</tr>
<tr>
<td>HHS 692</td>
<td>Graduate Internship</td>
<td></td>
</tr>
<tr>
<td>HPS 556</td>
<td>Health Care and the Law</td>
<td></td>
</tr>
<tr>
<td>MIS 643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 644</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS 649</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Transfer Credit
Students may apply for transfer of credit of a maximum of 15 semester hours from applicable University of Michigan graduate courses. Students may apply to transfer six semester hours from another accredited graduate institution. Only graduate course credit hours earned during the last five years for which a grade of B or better was received will be considered for transfer. Transfer credit may be requested only after admission to the Master of Science in Health Information Technology program and successful completion of eight credit hours of graduate-level letter-graded coursework. All courses to be transferred must be approved by the Department Chair of Health and Human Services. A "Request for Transfer of Credit" form and official course descriptions and course syllabi must be submitted. Enrolled students must obtain prior approval of the Department Chair to elect classes off campus.

Online Teaching Certificate Program
This certificate program is designed to help individuals learn how to design, develop, and implement online instructional modules for a broad range of learners. The program consists of four classes for a total of 12 credits and would be suitable for anyone interested in becoming more proficient in the area of online teaching. Students will learn how to use a wide-range of technologies to facilitate online learning and have the
opportunity to implement many of the online modules they create in order to increase their confidence and competence in web-based instruction. Coursework also emphasizes research-based pedagogical practices and instructional design. This certificate is granted by the College of Education, Health, and Human Services and is not a university or state administered certification.

Admission Requirements & Application
Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor's degree at an accredited institution
- 2.75 undergraduate/graduate grade point average or better

Individuals who wish to apply for this program may initiate the application process online at: (http://umdearborn.edu/cehhs/693111)umdearborn.edu/cehhs/693110.

Transfer of Credit
Transfer credit is not accepted for the Online Teaching Certificate Program.

Time Limits
All coursework toward the Online Teaching Certificate must be completed within 3 consecutive years from the date of first enrollment in the program. Students whose grade point average falls below a B (3.0 on a 4.0 scale) will be placed on probation.

Contact the Office of Student Success at 313-593-5090 for additional information or consult the College of Education, Health, and Human Services program web page at: umdearborn.edu/cehhs/cehhs_cert_online_teaching/

The Online Teaching Certificate program of study is 12 credit hours. A minimum cumulative GPA of B (3.0 on a 4.0 scale) must be maintained to continue enrollment in the program. The program requires successful completion of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 502</td>
<td>Survey of Educ Tech Tools</td>
<td>3</td>
</tr>
<tr>
<td>EDT 514</td>
<td>Application of Intrnl Design</td>
<td>3</td>
</tr>
<tr>
<td>EDT 520</td>
<td>Intro to Teaching/Learn Online</td>
<td>3</td>
</tr>
<tr>
<td>EDT 522</td>
<td>Educating the Digital Learner</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Program Evaluation and Assessment
The Master of Arts in Program Evaluation and Assessment is designed to prepare students for positions in assessment and evaluation particularly in educational settings or healthcare organizations. With an increasing emphasis on accountability, the demand for assessment and program evaluation is high in many fields. The curriculum will provide students with the knowledge and experience to 1: understand theories, issues, and approaches in assessment and program evaluation, 2: develop and administer formative and summative assessments and evaluation instruments, and 3: analyze and interpret assessment or evaluation results for evidence-based decision making. Students in this program will develop these skills and knowledge with a choice of a concentration in either education or health.

The UM-Dearborn MA in Program Evaluation and Assessment is differentiated from other Michigan institutions in that it uniquely combines assessment and program evaluation with a concentration in either education or health. The program will develop leaders who understand how issues of assessment and evaluation impact both schools and communities. Graduates will be equipped to handle the complexities of research design encountered in evaluations in institutional/organizational settings.

Program Goals
Graduates of the Master of Arts in Program Evaluation and Assessment program will become proficient in:

1. Designing and implementing formative and summative evaluations
2. Applying evaluation theory and diverse approaches in places of practice
3. Gathering, analyzing, interpreting, and using multiple data sources to make data-evidenced decisions
4. Understanding the types of requests from stakeholders in both formal and informal settings to know how to use a range of evaluation methods for assessing and furthering organizational goals

Admission Requirements
Students must submit the following items with their application. The GRE is not required for admission to this program. The Office of International Affairs lists additional admission requirements for international students (https://umdearborn.edu/io_international-grad-adm).

- Bachelor's degree from an accredited institution
- Official transcripts from all post-secondary institutions attended
- 3.0 GPA or higher on submitted transcripts
- Three professional letters of recommendation
- Personal statement

Students will be invited to participate in a group interview after their initial application materials have been reviewed.

Enter master requirements here

Science Education
The Master of Science in Science Education (MSSE) is designed for teachers at all levels who wish to further their knowledge of science as well as science pedagogy. The MSSE is based on the research underlying the Next Generation Science Standards.

The program is designed for professionals who possess either an elementary or secondary teaching certificate. MSSE students can elect to integrate studies of either literacy or the environment into their curriculum. To accommodate the different science content background of teachers with elementary or secondary certificates, this degree program has two tracks: one for K-8 teachers (Track I) and one for 6-12 teachers with BS or BA degrees in a science discipline (Track II). Depending on a student's background, a combination of the Tracks may be appropriate at the discretion of the MSSE Coordinator. The degree consists of 30 semester hours, available to both full and part-time students although courses will be primarily offered during the late
afternoon and evening sessions or in the summer to accommodate the working professional.

**Admission Requirements & Application**

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor’s degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- State of Michigan Teaching Certificate

Individuals who wish to apply for this program may initiate the application process online at: umdearborn.edu/gradapplynow/

**Transfer of Credit**

Students may apply for transfer of credit of a maximum of 15 semester hours from applicable University of Michigan graduate courses. Students may apply to transfer six semester hours from another accredited graduate institution. Only graduate course credit hours earned during the last five years for which a grade of B or better was received will be considered for transfer. Transfer credit may be requested only after admission to the Master of Science in Science Education program and successful completion of eight credit hours of graduate-level letter-graded coursework. All courses to be transferred must be approved by the Director of the Master’s Degrees. A "Request for Transfer of Credit" form and official course descriptions and course syllabi must be submitted. Enrolled students must obtain prior approval of the Coordinator to elect classes off campus.

**Time Limits**

All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

**MSSE Requirements**

**Track I**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 531</td>
<td>Adv Learning Inquiry: Phys Sci</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 532</td>
<td>Adv Inquiry: Earth/Planet Sci</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 533</td>
<td>Adv Inquiry: Life Science</td>
<td>3</td>
</tr>
<tr>
<td>EDD 574</td>
<td>Integrating Science &amp; Literacy</td>
<td>3</td>
</tr>
<tr>
<td>EDD 680</td>
<td>Adv Science Meth: Elem &amp; MS</td>
<td>3</td>
</tr>
<tr>
<td>EDT 510</td>
<td>Teaching with Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDK 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 520</td>
<td>Science Ed Action Research</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>Consult with the program advisor for eligible electives.</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

30

**Track II**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 574</td>
<td>Environmental Education</td>
<td>3</td>
</tr>
<tr>
<td>or EDD 586</td>
<td>Environmental Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>EDD 680</td>
<td>Adv Science Meth: Secondary</td>
<td>3</td>
</tr>
<tr>
<td>EDT 510</td>
<td>Teaching with Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDK 500</td>
<td>Intro to Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EXPS 520</td>
<td>Science Ed Action Research</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>Consult with the program advisor for eligible electives.</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

30

**Track I**

Evidence of passing the Integrated Science section of the Michigan Test for Teacher Certification (MTTC) at the elementary level. (Students may be provisionally admitted to Track I without the MTTC. Additional coursework may be required in that case.)

**Track II**

Evidence of passing the appropriate science sections of the MTTC (for major and/or minor)

For more information, call the Office of Student Success at 313-593-5090 or visit: http://umdearborn.edu/cehhs/cehhs_msse/

**Special Education**

The Master of Education in Special Education provides students with advanced training in special education. The MEd-SPED offers three possible concentrations:

1) **Learning Disabilities.** The Learning Disabilities concentration includes all of the coursework needed to earn the master’s degree and the State of Michigan, Learning Disabilities Endorsement. Candidates must pass the MTTC and hold a Michigan teaching certificate.

2) **Emotional Impairments.** The Emotional Impairments concentration includes all of the coursework needed to earn the master’s degree and State of Michigan, Emotional Impairments Endorsement. Candidates must pass the MTTC and hold a Michigan teaching certificate.

3) **Specialist in Mild Disabilities.** The Specialist in Mild Disabilities concentration includes all of the coursework needed to serve students with disabilities in inclusive environments.

**Objectives**

The College of Education, Health, and Human Services offers an endorsement program in K-12 learning disabilities and K-12 emotional impairments for certified teachers. These endorsements may be earned in the context of a 30-credit Master of Education in Special Education.
degree. The program is a local program that is designed for working educators and offers evening coursework and summer internship placements.

The College of Education, Health, and Human Services also offers a Master of Education in Special Education Specialist in Mild Disabilities degree. This program is a 30-credit hour online degree program that provides K-12 general-education teachers, administrators, social workers and other professionals an opportunity to gain the skills needed to teach students with disabilities in general education classrooms and mainstream settings. This degree track does not require a teaching certificate; furthermore, this program does not lead to teaching certification nor will it lead to an endorsement.

The Special Education Program enhances educational and career options by:

1. extending job opportunities from general education to learning disabilities or emotional impairments resource, consulting, and tutoring positions;
2. addressing the competencies needed for graduates to teach and serve students with disabilities in a variety of inclusive settings;
3. providing the background for graduates to seek special education administrative endorsements;
4. preparing graduates to work collaboratively with various educators and parents; and
5. providing the requisite skills needed for graduates to pursue doctoral studies in special education.

Admission Requirements & Application

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor’s degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- State of Michigan Teaching Certificate (not required for Specialist in Mild Disabilities concentration).

Individuals who wish to apply for this program may initiate the application process online at: umdearborn.edu/gradapplynow/

Transfer of Credit

For transfer courses, whether they are University of Michigan or non-University of Michigan, certain criteria must be met before the transfer application is made and in order for courses to transfer. There is a limit of six hours that can transfer from a non-University of Michigan school and 15 hours of University of Michigan credit as long as the courses apply to this program. Students are fully responsible for accurately planning their degree program. For additional information, please consult the Director of Master’s Degrees or the Office of Student Success 313-593-5090.

Time Limits

All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

Program Requirements

Master of Education in Special Education with a K-12 Learning Disabilities Endorsement (Michigan)

Candidates for the K-12 Learning Disabilities Endorsement must have a bachelor’s degree from an accredited college or university and a Michigan teaching certificate. The Learning Disabilities endorsement requires a total of 30 credit hours of coursework. These courses are also applied toward the completion of the Master of Education in Special Education.

Second-Area Special Education Learning Disabilities Endorsement-Only Requirements

Candidates desiring a second-area special education endorsement in Learning Disabilities must have a bachelor’s degree from an accredited college or university and a full Michigan teaching certificate in any other special education category (emotional impairments, mental impairments, visual or hearing impairments, etc.). The second-area endorsement requires 15 semester hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 501</td>
<td>Intro to Learning Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDC 517</td>
<td>Mgmt of Classroom Behavior</td>
<td>3</td>
</tr>
<tr>
<td>EDD 513</td>
<td>Internship Elementary LD</td>
<td>2</td>
</tr>
<tr>
<td>EDD 515</td>
<td>Internship - Secondary LD</td>
<td>2</td>
</tr>
<tr>
<td>EDK 680</td>
<td>Individual Res in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDN 501</td>
<td>Strategies for LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 502</td>
<td>Social/Vocational Transitions</td>
<td>3</td>
</tr>
<tr>
<td>EDN 503</td>
<td>Assessment of the Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDN 504</td>
<td>Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDN 506</td>
<td>Collaboration in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDN 508</td>
<td>Internship Seminar - LD</td>
<td>1</td>
</tr>
<tr>
<td>PDED 505</td>
<td>Sp Ed Legisltn and Litigation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 30

Master of Education in Special Education with a K-12 Emotional Impairments Endorsement (Michigan)

Candidates for the K-12 Emotional Impairments Endorsement must have a bachelor’s degree from an accredited college or university and a Michigan teaching certificate. The Emotional Impairments full endorsement requires a total of 30 credit hours of coursework. These courses are also applied toward the completion of the Master of Education in Special Education.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 501</td>
<td>Intro to Learning Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDN 501</td>
<td>Strategies for LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 503</td>
<td>Assessment of the Learner</td>
<td>4</td>
</tr>
<tr>
<td>&amp; EDN 504</td>
<td>Assessment Practicum</td>
<td></td>
</tr>
<tr>
<td>EDN 508</td>
<td>Internship Seminar - LD</td>
<td>1</td>
</tr>
<tr>
<td>EDD 513</td>
<td>Internship Elementary LD</td>
<td>2</td>
</tr>
<tr>
<td>EDD 515</td>
<td>Internship - Secondary LD</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credit Hours 15
Endorsement requires 15 semester hours.

The second-area endorsement in any other special education category (learning disabilities, mental impairments, visual or hearing impairments, etc.). The second-area endorsement in any other special education category (learning disabilities, mental impairments, visual or hearing impairments, etc.) requires 15 semester hours.

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor's degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- Official record of meeting minimum scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of

Michigan teacher endorsement requirements in special education, learning disabilities, or emotional impairments may change. It is the applicant’s or student’s responsibility to ascertain current requirements.

The College of Education, Health, and Human Services reserves the right to revise the learning disabilities and emotional impairments program without notice should state endorsement standards change. The College of Education, Health, and Human Services will endeavor to provide students with a state-approved program leading to the appropriate state endorsements.

For transfer courses, whether they are University of Michigan or non-University of Michigan, certain criteria must be met before the transfer application is made and in order for courses to transfer. There is a limit of six hours that can transfer from a non-University of Michigan school and 15 hours of University of Michigan credit as long as the courses apply to this program.

Students are fully responsible for accurately planning their degree program. For additional information, please consult the Director of Masters Degree Programs or Office of Student Success 313-593-5090.

Teaching
(Secondary School Certification)

The Master of Arts in Teaching program is designed for those who have completed a bachelor’s degree in non-educational fields and wish to earn the Michigan Secondary Provisional Certificate. Students in the MAT program will bring valuable experience and expertise to assist in their exploration of the practice of teaching. In addition to learning about adolescent learners and how to teach them, MAT coursework spurs students to think about the goals, values, beliefs and assumptions underlying formal schooling, and to consider schools in social, political and historical contexts.

The MAT coursework will be offered weekdays in the late afternoon and evening hours, and/or Saturdays to enable students to earn the degree through part-time study. Students who are employed will be able to complete the degree through after-work study except for the Directed Teaching requirement. This will occur during the last semester of each student’s residency.

Admission Requirements & Application

Eligibility for regular admission includes:

- Completed application form
- $60.00 application fee
- Official transcript(s) from each college/university attended
- Completion of a bachelor’s degree from an accredited institution
- 3.0 (B) undergraduate/graduate grade point average or better
- Three professional letters of recommendation using required form
- Statement of purpose
- Official record of meeting minimum scores on all three sections of the MTTC Professional Readiness Examination and/or State of Michigan-approved PRE alternative measures (if taken prior to September 23, 2017), or the Scholastic Aptitude Test benchmarks of

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 501</td>
<td>Intro to Learning Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDC 517</td>
<td>Mgmt of Classroom Behavior</td>
<td>3</td>
</tr>
<tr>
<td>EDN 501</td>
<td>Strategies for LD</td>
<td>3</td>
</tr>
<tr>
<td>EDN 523</td>
<td>Strat: Emotional Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDN 502</td>
<td>Social/Vocational Transitions</td>
<td>3</td>
</tr>
<tr>
<td>EDN 503</td>
<td>Assessment of the Learner</td>
<td>3</td>
</tr>
<tr>
<td>EDN 525</td>
<td>Eco-Behavioral Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDN 506</td>
<td>Collaboration in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDN 520</td>
<td>Intro to Emotional Impairments</td>
<td>3</td>
</tr>
<tr>
<td>PD6505</td>
<td>Sp Ed Legisltn and Litigation</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDN 526</td>
<td>Eco-Behavioral Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EDN 525</td>
<td>Eco-Behavioral Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDN 521</td>
<td>Practicum at Psych Facility</td>
<td>1</td>
</tr>
<tr>
<td>EDN 522</td>
<td>Emotional Impairments Instrnshp</td>
<td>3</td>
</tr>
<tr>
<td>EDN 523</td>
<td>Strat: Emotional Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDN 524</td>
<td>Couns Fam of Studts Emo Impair</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>EDN 520</td>
<td>Intro to Emotional Impairments</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 30
The total number of credit hours required for the MAT degree is 36.

MAT Program of Study Required Courses

The total number of credit hours required for the MAT degree is 36.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 500</td>
<td>Theoretical Foundations of Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDB 500</td>
<td>Multicult Ed in US Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDC 502</td>
<td>Adol Devl &amp; Classroom Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>EDC 556</td>
<td>Learning &amp; Classrm Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDC 561</td>
<td>Educating the Exceptional Chld</td>
<td>3</td>
</tr>
<tr>
<td>EDD 569</td>
<td>Reading in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDT 511</td>
<td>Design Tech-Based Learn Solutn</td>
<td>3</td>
</tr>
<tr>
<td>Methods Course in the Major Area ¹  3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Methods Course in the Minor Area ³</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDD 518</td>
<td>Directed Tchg (MAT) Second Sch</td>
<td>7-10</td>
</tr>
</tbody>
</table>

Total Credit Hours 34-37

¹Secondary Methods Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 501</td>
<td>Teach English in Second Grds</td>
<td>3</td>
</tr>
<tr>
<td>EDD 565</td>
<td>Teach Math in Second Grades</td>
<td>3</td>
</tr>
<tr>
<td>EDD 580</td>
<td>Teach of Sci in the Second Grd</td>
<td>3</td>
</tr>
<tr>
<td>EDD 590</td>
<td>Tch of the Soc Stud in Sec Sch</td>
<td>3</td>
</tr>
<tr>
<td>EDD 596</td>
<td>Second Lang Tchg: Sec Level</td>
<td>3</td>
</tr>
</tbody>
</table>

²Secondary Practicum Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDD 502</td>
<td>Practicum: English Second Grd</td>
<td>1</td>
</tr>
<tr>
<td>EDD 548</td>
<td>Pract: Tch Engl as Second Lang</td>
<td>1</td>
</tr>
<tr>
<td>EDD 566</td>
<td>Practicum: Math Second School</td>
<td>1</td>
</tr>
</tbody>
</table>

Prior to student teaching, students must have completed 90 hours of experience working with groups of children. Students must complete at least one 45-hour graduate level practicum associated with the methods courses in their major or minor (see practica listed at ² above). The remaining 45 hours of pre-student teaching experience may consist of volunteer opportunities sometimes available in the College of Education, Health, and Human Services and the University or may include similar self-arranged experiences; also, students may complete this obligation by completing a second 45-hour graduate level practicum (i.e., those associated with the methods courses in the major ³ or minor ³ or the Adolescent Development and Classroom Management Practicum (EDC 504).

Minimum Grade Point

A cumulative grade point average of 3.0 (B) is required for continuation in the program. Students whose cumulative grade point average falls below this level will be placed on probation. Continued deficiencies will result in a required withdrawal from the MAT Program.

Time Limits

All coursework toward the master’s degree must be completed within five (5) consecutive years from the date of first enrollment in the Graduate School.

MAT Program of Study Required Courses

The program is designed so that students can complete their certificates in one calendar year (three semesters). Students must complete the certificate program within three years from the date of first enrollment.

Admissions Requirements

All applicants must submit evidence of each of the following to the Office of Student Success along with a completed Post-Degree Application Form umdearborn.edu/cehhs/tesol/.

- Hold a baccalaureate degree from an accredited institution.
- A 2.75 or higher grade point average (GPA is based on a 4.0).
- An official transcript from college or university granting the undergraduate degree and one from each college or university attended.
- Submit a completed Post-Degree Application Form and non-refundable $30.00 application fee (payable by check or money order to University of Michigan-Dearborn). This fee is waived for applicants who have previously paid an application fee to any University of Michigan campus.
Transfer of Credit
A student may transfer in up to six (6) credit hours of graduate credit from the University of Michigan-Dearborn or another accredited institution provided the credits have not previously been applied to another degree or certificate. Credit hours transferred from other institutions must be taken within 5 years before enrollment with a grade of B or better.

Minimum Grade Point
A cumulative grade point average of 2.75 is required for continuation in the program. Courses in which grades of D, E, or U are earned cannot be used to fulfill requirements. Students whose cumulative grade point average falls below a 2.75 will be placed on probation. Continued deficiencies will result in a required withdrawal from the program.

TESOL Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 555</td>
<td>Asmt: Sec Lang Learning K-12</td>
<td>2</td>
</tr>
<tr>
<td>EDD 547</td>
<td>Tchng English as Second Lang</td>
<td>3</td>
</tr>
<tr>
<td>EDD 548</td>
<td>Pract: Tch Engl as Secnd Lang</td>
<td>1</td>
</tr>
<tr>
<td>EDM 505</td>
<td>TESOL Strategies</td>
<td>3</td>
</tr>
<tr>
<td>LING 574</td>
<td>Second Lang Acquisition: Engl</td>
<td>3</td>
</tr>
<tr>
<td>Select one:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDA 555</td>
<td>Lang,Clture,Litrcy&amp;Power in Ed</td>
<td>3</td>
</tr>
<tr>
<td>or LING 580</td>
<td>Concepts in Linguistics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 15

Some of the coursework is available online.

College of Engineering & Computer Science

Post-Baccalaureate Programs
The post-baccalaureate programs in engineering at the UM-Dearborn are geared to the demands of the student and the desires of society to further the technical background of the practicing engineer. Working students are accommodated by course offerings late in the afternoon and evening. Master’s level study is offered in automotive systems engineering, bioengineering, computer and information science, computer engineering, electrical engineering, energy systems engineering, engineering management, industrial and systems engineering, information systems & technology, mechanical engineering, manufacturing systems engineering, program and project management and software engineering. Each of these programs and their specific requirements are discussed in the sections that follow.

Graduate Programs
While the undergraduate program in engineering offers a challenging basic education, a program of graduate studies provides the opportunity for advanced or special studies in particular areas of interest. Particularly in an era of rapid technological and scientific advancement, many students find continued study a decided advantage. It offers an attractive opportunity to pursue their special interests and to acquire a more thorough preparation for their professional careers.

The graduate faculty at UM-Dearborn is authorized by the Rackham School of Graduate Studies to conduct approved programs leading to master’s degrees. Presently, Master of Science in Engineering degree programs, with specialization in automotive systems engineering, bioengineering, computer engineering, mechanical, electrical, energy systems, industrial and systems engineering, and manufacturing systems engineering, are offered. Master of Science degrees in computer and information science, engineering management, information systems and technology, program and project management, and software engineering are also offered. A dual degree program leading to both a Master of Business Administration and a Master of Science in Engineering-Industrial and Systems Engineering is also available. Students admitted to the Rackham School of Graduate Studies, pursuing degree programs elsewhere in the University (i.e., at another campus), may elect to take a portion of their coursework at UM-Dearborn.

Many graduate programs and courses are offered using distance learning technologies. Students interested in this flexible and convenient course Credit learning-outreach (http://catalog.umd.umich.edu/cecs/extended-learning-outreach) option should call 313-593-4000 or visit: umdearborn.edu/cehs/tesol/

Master of Science in Engineering (MSE) and Master of Science (MS) Programs
The programs in industrial systems, information systems and technology, computer and information science, automotive systems, energy systems, electrical, computer, mechanical, manufacturing systems engineering, software, program and project management, as well as engineering management, are designed to provide a thorough and vigorous educational experience both for the student who plans to enter the engineering profession after completing the requirements and for the student who wishes to pursue the PhD. This is accomplished by the curricula, which provides appropriate breadth, while at the same time permitting the students considerable freedom in the selection of both engineering science and professionally oriented courses in their special interests, and through an environment in which faculty and graduate students may work together on a broad spectrum of research projects.

At the present time, the size of the student body, together with the breadth and depth of the instructional programs to be given, require that specific course offerings be spaced appropriately throughout the three-term year on which UM-Dearborn operates. The present schedule of courses in the four engineering disciplines and CIS provides opportunity for both full-time and part-time students.

Students who wish to pursue engineering or CIS programs on a full-time basis may enter in fall, winter, or summer terms. The usual full-load program of graduate studies varies from none to 12 credit hours each term. For mechanical, electrical and computer, industrial and systems, manufacturing systems, or automotive systems engineering, qualified students entering in the fall for continuous study can plan to complete their studies in one year. Normally they will complete an average of 24 credit hours in the first two terms, and can satisfy the remaining credit hours of the minimum 30-hour requirement on a part-time basis through courses that span the complete spring-summer term, or in some cases on a full-time basis during the spring half-term. Students in the engineering management program must complete 36 credit hours. Students in the automotive systems engineering program must undertake a capstone project or a master’s thesis, which will span two terms. Full-time students...
should be able to complete their automotive systems engineering degree program in four terms.

Students planning part-time study can begin their work during any of the three terms. Class schedules are arranged to accommodate part-time, later afternoon, and evening students from local industrial firms. Information on this kind of program, which provides many advantages to both employer and student, can be obtained from the graduate program advisor.

Students may also pursue an alternative type of participation (similar in timing to a cooperative program but without University control over the work periods) when continuous participation is not feasible for financial or other reasons.

This degree program is available both on campus and via the Internet.

Course Descriptions
The following lists include all courses normally offered at UM-Dearborn. However, not all courses are offered every year and periodically courses are added and deleted. For details, students should consult the Schedule of Classes for each term.

Master’s Programs
• Automotive Systems Engineering (p. 545)
• Bioengineering (p. 548)
• Computer Engineering (p. 550)
• Computer and Information Science (http://catalog.umd.umich.edu/graduate/college-engineering-computer-science/computer-information-science)
• Electrical Engineering (p. 551)
• Energy Systems Engineering (p. 552)
• Engineering Management (p. 553)
• Industrial and Systems Engineering (p. 554)
• Information Systems and Technology (p. 560)
• Manufacturing Systems Engineering (p. 563)
• Mechanical Engineering (p. 564)
• Program and Project Management (p. 565)
• Software Engineering (p. 566)

Doctorate Programs
• Automotive Systems Engineering (p. 546)
• Computer and Information Science (http://catalog.umd.umich.edu/graduate/college-engineering-computer-science/computer-information-science)
• Electrical and Computer Engineering (http://catalog.umd.umich.edu/graduate/college-engineering-computer-science/electrical-computer-engineering)
• Industrial and Systems Engineering (p. 554)
• Information Systems (p. 562)
• Mechanical Sciences and Engineering (http://catalog.umd.umich.edu/graduate/college-engineering-computer-science/mechanical-sciences-engineering)

Dual Degree Programs
• Industrial and Systems Engineering (MSE) and Master of Business Administration (MBA) (p. 555)

Certificates
• Automotive Materials and Design (p. 544)
• Automotive Noise, Vibration & Harshness (p. 545)
• Automotive Powertrains (p. 545)
• Control Systems (p. 551)
• Electric Energy Technology (p. 551)
• Game Design (p. 554)
• Intelligent Systems in Engineering Applications (p. 563)
• Plastic & Composite Materials (p. 565)
• Program & Project Management (p. 566)
• Software Engineering (p. 568)
• Systems Engineering (p. 568)
• Vehicle Electronics & Controls (p. 569)

Administration
Tony England, PhD, Dean
Ghassan Kridli, PhD, Associate Dean for Undergraduate Education
Yi Lu Murphey, PhD, Associate Dean for Graduate Education and Research
John Cristiano, PhD, Director, Henry W. Patton Center for Engineering Education and Practice, and Institute for Advanced Vehicle Systems
Anthony DeLaRosa, MA, Assistant Director, Experiential Learning and Co-op Education
M. Jeanne Girard, MPA, Director, Office of Extended Learning and Outreach
Eric Kirk, Director, Lab Safety
Leigh McGrath, BS, Director, Business Operations
Lisa Remsing Hall, PhD, Director, Advising and Academic Success

Chairs and Directors
Ben Q. Li, Chair, Department of Mechanical Engineering
Paul Richardson, Chair, Department of Electrical and Computer Engineering
Armen Zakarian, Chair, Department of Industrial and Manufacturing Systems Engineering
Qiang Zhu, Chair, Department of Computer and Information Science

Professors Emeriti
Aswad, A. Adnan, PhD, Professor Emeritus of Industrial and Manufacturing Systems Engineering
Boffi, Luiz V., ScD, Professor Emeritus of Electrical and Computer Engineering
Bolling, Fredric, PhD, Professor Emeritus of Mechanical Engineering
Caims, J. Robert, PhD, Professor Emeritus of Mechanical Engineering
Chang, Chia-hao, PhD, Professor Emeritus of Industrial and Manufacturing Systems Engineering
Conlon, Howard E., MS, Associate Professor Emeritus of Mechanical Engineering
Despres, Thomas A., PhD, Professor Emeritus of Mechanical Engineering
Habib, Izzeddin S., PhD, Professor Emeritus of Mechanical Engineering
Heim, Dwight S., PhD, Professor Emeritus of Electrical Engineering
Kachhal, Swatantra K., PhD, Professor Emeritus of Industrial and Manufacturing Systems Engineering
Kampfner, Roberto, PhD, Associate Professor Emeritus of Computer and Information Science
Knight, James W., PhD, Associate Professor Emeritus of Industrial and Manufacturing Systems Engineering
Murtuza, Syed, PhD, Professor Emeritus of Electrical and Computer Engineering
Riordan, John, MS, Professor Emeritus of Computer and Information Science
Sullivan, Joseph E., MS, Associate Professor Emeritus of Electrical and Computer Engineering
Tsui, Louis, PhD, Associate Professor Emeritus of Computer and Information Science
Wolf, Louis W., PhD, Associate Professor Emeritus of Mechanical Engineering

**Faculty**

**Department of Computer and Information Science**
Abouelenien, Mohamed, PhD, University of North Texas, Assistant Professor of Computer and Information Science
Akingbehin, Kiumi, PhD, Wayne State University, Professor of Computer and Information Science
Bacha, Anys, PhD, The Ohio State University, Assistant Professor of Computer and Information Science
Dehzangi, Omid, PhD, Nanyang Technological University, Assistant Professor of Computer and Information Science
Elenbogen, Bruce, PhD, Northwestern University, Associate Professor of Computer and Information Science
Grosky, William I., PhD, Yale University, Professor of Computer and Information Science
Guo, Jinhua, PhD, University of Georgia, Assistant Professor of Computer and Information Science
Kessentini, Marouan, PhD, University of Montreal, Assistant Professor of Computer and Information Science
Ma, Di, PhD, University of California-Irvine, Assistant Professor of Computer and Information Science
Maxim, Bruce, PhD, University of Michigan, Professor of Computer and Information Science
Medjahed, Brahim, PhD, Virginia Tech University, Assistant Professor of Computer and Information Science
Neji, Sana, MBA\MS, University of Quebec, Lecturer III of Computer and Information Science
Ortiz, Luis, PhD, Brown University, Assistant Professor of Computer and Information Science
Shen, Jie, PhD, University of Saskatchewan, Assistant Professor of Computer and Information Science
Wang, Shengquan, PhD, Texas A M University, Assistant Professor of Computer and Information Science
Xu, Zhiwei, PhD, Florida Atlantic University, Assistant Professor of Computer and Information Science
Yoon, David, PhD, Wayne State University, Associate Professor of Computer and Information Science
Zhu, Qiang, PhD, University of Waterloo, Professor of Computer and Information Science

**Department of Electrical and Computer Engineering**
Awad, Selim Saad, PhD, Polytechnic Institute of Grenoble, Professor of Electrical and Computer Engineering
Baek, Stanley, PhD, University of California-Berkley, Assistant Professor of Electrical and Computer Engineering
Bai, Hua, PhD, Tsinghua University, Associate Professor of Electrical and Computer Engineering
El Kateeb, Ali, PhD, Concordia University, Associate Professor of Electrical and Computer Engineering
Islam, Riadul, PhD, University of California-Santa Cruz, Assistant Professor of Electrical and Computer Engineering
Kim, Taeyhun, PhD, Texas A M, Associate Professor of Electrical and Computer Engineering
Lakshmanan, Sridhar, PhD, University of Massachusetts Amherst, Associate Professor of Electrical and Computer Engineering
Liu, Chun-Hung, PhD, University of Texas-Austin, Assistant Professor of Electrical and Computer Engineering
Malik, Hafiz, PhD, University of Illinois At Chicago, Associate Professor of Electrical and Computer Engineering
Miller, John, PhD, University of Toledo, Associate Professor of Electrical and Computer Engineering
Murphey, Yi Lu, PhD, University of Michigan, Professor of Electrical and Computer Engineering
Putty, Michael, PhD, University of Michigan, Lecturer III of Electrical and Computer Engineering
Rawashdeh, Samir, PhD, University of Kentucky, Assistant Professor of Electrical and Computer Engineering
Richardson, Paul C., PhD, Oakland University, Professor of Electrical and Computer Engineering
Shaout, Adnan, PhD, Syracuse University, Professor of Electrical and
Computer Engineering

Shridhar, Malayappan, PhD, University of Aston, Professor of Electrical
and Computer Engineering

Su, Wencong, PhD, North Carolina State University, Assistant Professor of
Electrical and Computer Engineering

Wang, Mengqi, PhD, North Carolina State University, Assistant Professor of
Electrical and Computer Engineering

Watta, Paul, PhD, Wayne State University, Associate Professor of
Electrical and Computer Engineering

Wei, Lu, PhD, Aalto University, Assistant Professor of Electrical and
Computer Engineering

Xiang, Weidong, PhD, Tsinghua University, Professor of Electrical and
Computer Engineering

Yi, Yasha, PhD, Massachusetts Institute of Technology, Associate
Professor of Electrical and Computer Engineering

Zhao, Dongming, PhD, Rutgers University, Professor of Electrical and
Computer Engineering

Zheng, Yu, PhD, University of North Carolina, Assistant Professor of
Electrical and Computer Engineering

Department of Industrial Manufacturing Systems
Engineering

Ayoub, Georges Y., PhD, University of Lille, Assistant Professor of
Industrial and Manufacturing Systems Engineering

Chehade, Abdallah, PhD, University of Wisconsin-Madison, Assistant
Professor of Industrial and Manufacturing Systems Engineering

Chen, Xi, PhD, University of Minnesota, Assistant Professor of Industrial
and Manufacturing Systems Engineering

Chen, Yubao, PhD, University of Wisconsin-Madison, Professor of
Industrial and Manufacturing Systems Engineering

Hu, Jian, PhD, Northwestern University, Assistant Professor of Industrial
and Manufacturing Systems Engineering

Hu, Zhen, PhD, Missouri University of Science and Technology, Assistant
Professor of Industrial and Manufacturing Systems Engineering

Jia, Bochen, PhD, Virginia Polytechnic Institute and State University,
Assistant Professor of Industrial and Manufacturing Systems Engineering

Kim, Sang-Hwan, PhD, North Carolina State University, Associate
Professor of Industrial and Manufacturing Systems Engineering

Kridli, Ghassan, PhD, University of Missouri-Columbia, Professor of
Industrial and Manufacturing Systems Engineering

Lee, Cheol, PhD, Purdue University, Associate Professor of Industrial and
Manufacturing Systems Engineering

Liu, Yung-Wen, PhD, University of Washington, Associate Professor of
Industrial and Manufacturing Systems Engineering

Orady, Elsayed A., PhD, McMaster University, Professor of Industrial and
Manufacturing Systems Engineering

Tolbert, DeLean, PhD, Purdue University, Assistant Professor of Industrial
and Manufacturing Systems Engineering

Ulgen, Onur, PhD, Texas Technological University, Professor of Industrial
and Manufacturing Systems Engineering

Xi, Zhimin, PhD, University of Maryland, Assistant Professor of Industrial
and Manufacturing Systems Engineering

Zakarian, Armen, PhD, University of Iowa, Professor of Industrial and
Manufacturing Systems Engineering

Zhou, Feng, PhD, Georgia Institute of Technology, Associate Professor of
Industrial and Manufacturing Systems Engineering

Department of Mechanical Engineering

Argento, Alan, PhD, University of Michigan, Professor of Mechanical
Engineering

Chakraborty, Nilay, PhD, University of North Carolina, Assistant Professor of
Bioengineering

Cheng, John G., PhD, University of Tennessee, Professor of Mechanical
Engineering

Ghosh, Gargi, PhD, University of Kentucky, Associate Professor of
Bioengineering

Huntley, Hugh, PhD, University of Michigan, Associate Professor of
Mechanical Engineering

Jung, Dohoy, PhD, University of Michigan, Associate Professor of
Mechanical Engineering

Kanapathipillai, Mathumai, PhD, Iowa State University, Assistant
Professor of Bioengineering

Kang, Hong Tae, PhD, University of Alabama, Professor of Mechanical
Engineering

Kim, Youngki, PhD, University of Michigan, Assistant Professor of
Mechanical Engineering

Li, Ben Q., PhD, University of California-Berkeley, Professor of Mechanical
Engineering

Little, Robert E., PhD, University of Michigan, Professor of Mechanical
Engineering

Lo, Joe Fu-Jiou, PhD, University of Southern California, Assistant
Professor of Bioengineering

Mallick, Pankaj K., PhD, Illinois Institute of Technology, Professor of
Mechanical Engineering

Mei, Carole, PhD, University of Auckland, Professor of Mechanical
Engineering

Mohanty, Pravansu, PhD, McGill University, Professor of Mechanical
Engineering

Ratta, Eric, PhD, Massachusetts Institute of Technology, Associate
Professor of Mechanical Engineering
Reyes-Villanueva, German, PhD, University of Liverpool, Associate Professor of Mechanical Engineering

Sengupta, Subrata, PhD, Case Western Reserve University, Professor of Mechanical Engineering

Shim, Taehyun, PhD, University of California-Davis, Professor of Mechanical Engineering

Varde, Keshav S., PhD, University of Rochester, Professor of Mechanical Engineering

Zhang, Yi, PhD, University of Illinois at Chicago, Professor of Mechanical Engineering

Zikanov, Oleg, PhD, Moscow State University, Professor of Mechanical Engineering

Rules and Procedures

Since all master degree programs in graduate studies in engineering at the Rackham School of Graduate Studies, Ann Arbor, and all graduate students in engineering are registered in the graduate school, it is the responsibility of each graduate student to read the rules and procedures that are available on the Rackham School of Graduate Studies website: www.rackham.umich.edu/policies/academic_policies/ (http://www.rackham.umich.edu/policies/academic_policies)

Additional Academic Information

Academic Advising

The graduate student’s program of study is arranged through individual counseling to meet career objectives based on prior preparation. The student will be given an opportunity to indicate an area of interest and will be advised by a graduate advisor.

New and continuing students are encouraged to take advantage of scheduled early registration days.

Admission to the Programs at UM-Dearborn

In general, admission to the graduate degree programs is limited to students who have completed their undergraduate work in an ABET-accredited institution with an average grade not less than B. However, in order that each qualified student be granted admission, each application is considered individually by the graduate committee of the program. Specific deficiencies in undergraduate preparation do not necessarily prevent enrollment in the programs, but the work necessary to fill such deficiencies cannot be used to meet the credit hour requirements for the graduate degree.

Students admitted to graduate school and contemplating a master’s degree should, at the earliest opportunity and certainly before registering for their first course, contact the graduate advisor for assistance in planning their programs.

Application information can be found on the Graduate Admissions website: (http://www.engin.umd.umich.edu/pros_students/forms.php)umdearborn.edu/admissions/graduate/how-apply

Such applications are individually reviewed by the departmental graduate committee in question. The resulting recommendation is transmitted to the Graduate Studies office, which communicates with the applicant. General admission requirements are available at: (http://www.umd.umich.edu/grad_admissionreq)umdearborn.edu/admissions/graduate/how-apply/basic-admission-requirements

Application Deadlines

We recommend all documents be submitted by the recommended deadline. Deadlines are advisory in nature, meaning most programs with rolling admissions will continue to accept applications and review for admission beyond the deadline if there is space available. Advisory deadline guidelines by term are provided below.

Domestic Applicants:

May 1 for Fall Term

September 1 for Winter Term

January 1 for Summer Term

International Applicants*:

April 1 for Fall Term

September 1 for Winter Term

January 1 for Summer Term

*Additional time is required for international applicants due to the additional materials required and the student visa application process. For more, visit the Office of International Affairs (https://umdearborn.edu/offices/international-affairs/admitted-international-students/obtaining-visa-arrival-information).

If you have international transcripts but do not require a student visa, please contact the Office of Graduate Studies (https://umdearborn.edu/academics/graduate-studies/office-graduate-studies) for a recommended deadline.

International students should apply four to six months before the term begins.

Grading

The method of grading graduate students conforms in general to that used in undergraduate colleges. No student will be given a higher grade in a course because of the fact that the student is a graduate student. Although a B average is required, no greater leniency in grading on that account is expected, even in courses taken only by graduate students. Hours of D and E grades are used to determine the average grade for each student, but are not included in the number of hours required for the degree. Whenever such fineness of discrimination is possible, plus and minus signs are affixed to the letter grades.

If at the end of a term the student’s work in a course is not complete, a grade of I (for incomplete) may be used. All incomplete (I) grades must be accompanied by an Incomplete contract that specifies the time given to the student to complete the necessary assignments. Any extension beyond 12 months requires approval by the CECS Executive Committee. If the incomplete (I) grade is not resolved within the allowed time, a grade of FE will be assigned.

Because of the greater maturity and generally shorter programs of graduate students, it is assumed that their performance in mixed classes will on the average be better than that of undergraduates. Instructors also should expect more substantial work from graduate students. The process of grading graduate students in mixed classes should not, however, reflect these assumptions, i.e., these students should be given
marks that indicate their standing in the class as a whole. No marks below C- carry credit points for graduate students.

Grade averages are computed according to the numerical table of honor points below

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>0.0 (Not Passed)</td>
</tr>
<tr>
<td>UE</td>
<td>0.0 (Unearned Fail)</td>
</tr>
</tbody>
</table>

**New Admissions Requirements**

Applicants deficient in some of the admission requirements of the graduate school or of the department or program of specialization, who nevertheless show promise of being able to satisfy these requirements, may be granted tentative admission for a limited period to enable them to make up these deficiencies. Any credits earned under tentative admission will be considered for possible use as graduate credits only when the student has achieved regular admission status.

1. Graduates of an unaccredited institution may be granted tentative admission on the condition that they complete one semester of 12 credit hours of additional qualifying work at the University of Michigan before completing the normal degree requirements.

2. Graduates of foreign or American institutions whose previous preparation cannot be adequately evaluated, and graduates who received any part of their qualifying education more than seven years before their application to the graduate school, may be granted tentative admission. Such applicants are permitted one semester of study before regular admission and may be required to complete additional qualifying work beyond the normal degree requirements. A second semester of study may be approved for these applicants by the department or program chairperson (or designate).

3. Undergraduate students in their final year of work toward a bachelor's degree may be granted tentative admission on the basis of academic credentials to date and pending the receipt of official transcripts indicating satisfactory completion of all coursework and award of the bachelor's degree.

4. Undergraduate students at the University of Michigan who at the beginning of a full semester are within six credit hours or at the beginning of a half-semester are within four credit hours of graduation may be granted tentative admission to the graduate school for that term or half-term.

**Extended Learning & Outreach (ELO)**

Extended Learning & Outreach provides programs and technical seminars designed for engineering and computer science professionals interested in continuing education opportunities.

Many offerings can be customized to accommodate both individual and organizational requirements. Programs are available in face-to-face or online formats. ELO's various programming areas currently include:

**Distance Learning Network (DLN)**

Most CECS graduate courses are available via distance learning, making it possible to complete an entire degree or certificate program online. Most courses do require examination proctoring, either at the UMD campus or utilizing a proctor at an alternate location. Presently, all DLN courses are offered asynchronously, providing students with the flexibility to learn anytime, anywhere. Each online course has a companion campus-based course and both are taught by the same instructor. Campus-based courses are recorded and posted to course websites so that distance learning students can view recorded lectures at their convenience. Distance learning students have opportunities to interact with their instructors and with other students throughout the semester. A shared course website increases opportunities for broader interaction, intellectual exchanges, and networking.

**Graduate Certificate Programs**

The college's Graduate Certificate Programs are designed to provide specialization in a particular topic area. Each certificate requires the completion of a minimum of twelve graduate credit hours. Certificate courses provide students with the opportunity to complement an already acquired degree, or transfer some credits into one of the college's graduate degree programs (upon admission) as dictated by University policy. Many certificate program courses are available via distance learning.

**Technical Seminars and Short Courses (Non Credit Topics)**

ELO's technical seminars and short courses are designed for engineering and computer science professionals to explore particular areas of interest within a semester-long distance learning experience. All offerings are designed and taught by faculty of UM-Dearborn or industry experts. Courses are offered in online or face-to-face formats (on campus or at corporate locations). Continuing Education Units (CEU’s) or Professional Development Hours (PDH’s) are awarded to participants successfully completing course requirements. With sufficient interest, courses may also be customized to meet organizational training needs.

**For Further Information**

To request additional information about any of the ELO programs mentioned here, please contact the department at 313-593-4000 or visit: umdearborn.edu/cecs/extended-learning-outreach (http://catalog.umd.umich.edu/cecs/extended-learning-outreach)

**Automotive Materials and Design**

The automotive system of the twenty-first century is poised to advance at a rapid pace with greater emphasis on lightweight structures, high efficiency powertrains, intelligent control systems, lower emissions, robust design and manufacturing, as well as improved comfort and safety. This certificate program gives an opportunity for automotive engineers to learn about lightweight materials, advancements in ergonomic and structural design, vehicle dynamics and control, and advanced manufacturing techniques (12 credit hours).

*Certificate offered on Campus and via Distance Learning.*
Coursework

Please choose four courses to complete the required 12 credit hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>AENG 550</td>
<td>Design of Automotive Chassis</td>
<td>3</td>
</tr>
<tr>
<td>AENG 551</td>
<td>FEM in Auto Structure Design</td>
<td>3</td>
</tr>
<tr>
<td>AENG 555</td>
<td>Vehicle Stability &amp; Control</td>
<td>3</td>
</tr>
<tr>
<td>AENG 586</td>
<td>Design &amp; Mfg: Ltwt Auto Mat</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 593</td>
<td>Vehicle Package Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME 543</td>
<td>Vehicle Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 545</td>
<td>Acoustics and Noise Control</td>
<td>3</td>
</tr>
<tr>
<td>ME 584</td>
<td>Mechanical Behavior of Polymer</td>
<td>3</td>
</tr>
<tr>
<td>ME 587</td>
<td>Automotive Composites</td>
<td>3</td>
</tr>
</tbody>
</table>

Automotive Powertrains

Automobiles of the twenty-first century is poised to advance at a rapid pace with greater emphasis on lightweight structures, high efficiency powertrains, intelligent control systems, lower emissions, robust design and manufacturing, as well as improved comfort and safety. This certificate program gives an opportunity for automotive engineers interested in high efficiency powertrains to learn about the advancements in engines, transmissions, electric and hybrid vehicles, and emission controls. (12 credit hours)

Certificate offered on Campus and via Distance Learning.

Coursework

Please choose four courses to complete the required 12 credit hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 540</td>
<td>Automobile Powertrains I</td>
<td>3</td>
</tr>
<tr>
<td>ME 543</td>
<td>Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>ME 545</td>
<td>Vehicle Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 548</td>
<td>Acoustics and Noise Control</td>
<td>3</td>
</tr>
<tr>
<td>ME 548</td>
<td>Automotive Powertrains II</td>
<td>3</td>
</tr>
</tbody>
</table>

Automotive Noise, Vibration and Harshness

This certificate program provides fundamental principles of acoustics and vibration theories, with emphasis on the applications of these principles to practical vehicle NVH problems. It covers basics of vehicle dynamics, free and forced vibration systems, acoustic wave propagations and transmission, acoustic interior trim and floor covering designs and analysis including Statistical Energy Analysis (SEA) technology, plus sound quality issues and vehicle audio system designs. (12 credit hours)

Certificate offered on Campus and via Distance Learning.

Coursework

Please choose four courses to complete the required 12 credit hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 500</td>
<td>Automobile: An Integrated Syst</td>
<td>3</td>
</tr>
<tr>
<td>AENG 587</td>
<td>Automotive Manuf Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

Core Courses

The core is intended to provide a unified graduate-level preparation in interdisciplinary topics that will allow students to elect courses in departmental, systems, or general concentrations. It consists of six credit hours of required courses and six credit hours of elective core courses based on the applicant’s background.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 502</td>
<td>Modeling of Automotive Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Automotive Systems Engineering

The Automotive Systems Engineering degree program aims to achieve the following educational goals:

1. Provide depth in the area of automotive systems engineering.
2. Provide breadth across the engineering disciplines of electrical, industrial, mechanical, materials, and manufacturing engineering and provide this breadth from an engineering systems perspective.

A candidate for the Master of Science in Engineering in Automotive Systems Engineering must meet the requirements for the Bachelor of Science degree at this campus or the equivalent of these requirements. Undergraduate degrees must be from an accredited program, and for regular admission must be with an average of B or better. Each applicant should present complete, official transcripts of all prior college work.

The candidate must then complete at least 30 semester hours of graduate work approved by the program advisor/graduate advisory committee with a grade of at least a B covering all courses elected. No more than one B- will be allowed under any circumstances. Applicants who meet the general admission criteria but do not have adequate preparation in required areas of engineering would be asked to take appropriate undergraduate courses as a condition for full admission to the program. Such courses, when elected, will not count towards the degree requirements.

The automotive systems engineering degree program is made up of three components:

1. Core courses of 12 credit hours.
2. Concentration courses of 18 credit hours.

Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 500</td>
<td>Automobile: An Integrated Syst</td>
<td>3</td>
</tr>
<tr>
<td>AENG 587</td>
<td>Automotive Manuf Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Core Courses

Select from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 502</td>
<td>Modeling of Automotive Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
Concentration Courses

The program offers several concentration areas to meet the needs of individual students. The student may select the concentration based on his/her interest and background. The following concentrations are currently offered. Each student is required to take at least four courses (12 credit hours) in the concentration area.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 505</td>
<td>Digital Systems &amp; Microprocess</td>
<td></td>
</tr>
<tr>
<td>AENG 510</td>
<td>Vehicle Electronics I</td>
<td></td>
</tr>
<tr>
<td>AENG 545</td>
<td>Vehicle Ergonomics I</td>
<td></td>
</tr>
<tr>
<td>AENG 547</td>
<td>Automotive Powertrains I</td>
<td></td>
</tr>
<tr>
<td>AENG 581</td>
<td>Materials Sel in Auto Design</td>
<td></td>
</tr>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td></td>
</tr>
<tr>
<td>or IMSE 516</td>
<td>Project Management and Control</td>
<td></td>
</tr>
<tr>
<td>or IMSE 517</td>
<td>Managing Global Programs</td>
<td></td>
</tr>
<tr>
<td>AENG 596</td>
<td>Internal Combustion Engines I</td>
<td>12</td>
</tr>
</tbody>
</table>

Select at least four courses from an area of concentration:

**Electrical:**
- ECE 515 Vehicle Electronics II
- ECE 530 Energy Storage Systems
- ECE 531 Intelligent Vehicle Systems
- ECE 532 Auto Sensors and Actuators
- ECE 533 Active Automotive Safety Sys
- ECE 5462 Elec Aspects of Hybrid Vehicle
- ECE 565 Digital Control Systems
- ECE 580 Digital Signal Processing
- ECE 646 Adv Elec Drive Transportation

**Industrial and Manufacturing:**
- IMSE 519 Quan Meth in Quality Engin
- IMSE 538 Intelligent Manufacturing
- IMSE 561 Tot Qual Mgmt and Six Sigma
- IMSE 577 User Interface Des & Anlsis
- IMSE 593 Vehicle Package Engineering
- AENG 546 Vehicle Ergonomics II
- AENG 589 Auto Assembly Systems

**Mechanical:**
- ME 537 Automotive Air Conditioning
- ME 543 Vehicle Dynamics
- ME 545 Acoustics and Noise Control
- ME 548 Automotive Powertrains II
- ME 570 Powertrain NVH of Elect Veh
- ME 597 Internal Combustion Engines II
- ME 598 Engine Emissions
- AENG 550 Design of Automotive Chassis
- AENG 551 FEM in Auto Structure Design
- AENG 555 Vehicle Stability & Control
- AENG 566 Vehicle Thermal Management
- AENG 598 Energy Sys for Auto Vehicles
- AENG 650 Anyls&Des for Veh Crashwrthns
- AENG 584 Lightweight Automotive Alloys
- AENG 586 Design & Mfg: Lwt Auto Mat
- AENG 588 Design&Manufac for Environment
- AENG 687 Adv Auto Mfg Processes
- ME 582 Injection Molding
- ME 583 Mechanical Behav of Materials
- ME 584 Mechanical Behavior of Polymer
- ME 587 Automotive Composites
- ME 589 Composite Materials
- ME 591 Degradation of Materials

Students may elect AENG 698, a 3 credit hour or a 6-credit hour project, or AENG 699, a 6-credit hour master's thesis, in lieu of equivalent credit hours of courses. This will require prior approval of a faculty advisor and the program director.

The Ph.D. program in Automotive Systems Engineering is designed to meet the need of engineers who intend to follow a career of technical specialists and serve as technical leaders, innovators and research mentors. It is a 50 credit hour postgraduate program and can be pursued either on a full-time or a part-time basis. The classes are held in the evenings for the convenience of working engineers. The areas of specialization available in the program include materials and materials processing, energy systems and thermal management, dynamics and controls, power electronics, vehicle design, manufacturing and systems integration, and vehicle informatics and communication.

Admission

The following are the minimum requirements for admission in the Ph.D. program.

1. A bachelor's degree in engineering or computer science from an accredited program with an expected GPA of 3 or higher on a 4-point scale
2. A master's degree in engineering or computer science from an accredited program with an expected GPA of 3.5 or higher on a 4-point scale or 6.5 or higher on a 9-point scale
3. GRE taken within 5 years prior to admission
4. TOEFL for international students (minimum score of 84 in internet-based test)
5. At least one advanced mathematics course at the master's level (If the student has not taken an advanced math course at the master's level, an appropriate math course will be recommended as a prerequisite. This course must be successfully completed within the first year of the program.)
6. Three recommendation letters from faculty and/or employer (The recommendation letters must be on official letterhead and indicate the student's research potential.) Each recommender must also complete the Recommendation for Admission form.
7. A Statement of Purpose describing academic and research background, career goals and educational objectives and research interest
Applications are accepted for Fall term only.

**Degree Requirements**

A student must complete a minimum of 50 credit hours (beyond master’s) for graduation. Out of the 50 credit hours, 24 credit hours will be based on coursework (beyond master’s) and 26 credit hours will be based on Ph.D. dissertation. For good academic standing, the student must maintain a minimum 3.3 GPA.

**Course Requirements**

The course curriculum will consist of one required core course, four specialization courses, three elective courses, and a seminar course. Each student must submit a course plan with specified specialization area within one semester after starting the program. All Ph.D. courses must be 500 level and above. However, not all 500-level courses may be accepted in the Ph.D. program. Up to nine credit hours of courses from another university will be accepted as transfer credits; however, the Doctoral Program Council must approve the acceptance of transfer credits.

**Core Course (3 credit hours)**

The student must complete the core course titled “Modeling of Automotive Systems” in the Automotive Systems Engineering program.

**Specialization Courses (12 credit hours)**

Four courses must be selected in an area of specialization with prior approval from the director of the doctoral program.

**Elective Courses (9 credit hours)**

The student must take three elective courses, at least two of which must be from outside the student’s specialization area.

**Seminar Course (0 credit hours)**

The student must register for and participate in the seminar course each semester after attaining candidacy and until the completion of the dissertation. The seminar course will be of pass/fail type and will not carry any credits.

**Qualifying Examination**

The Qualifying Examination must be taken in one major area and two minor areas. The proposed three examination areas must be approved by the Doctoral Program Council. The major area will require both written and oral examinations. The other two areas, designated as minor areas, will require only written examinations.

1. The qualifying examination must be taken within 24 months after admission in the program. This will typically occur after finishing the core course, at least two specialization courses, and two courses outside the specialization area.
2. The student must be in good academic standing at the time of the qualifying examination.
3. The student must select three areas for the qualifying examination and declare one of the areas as the specialization area, typically the area of the student’s research. There will typically be two examiners in the major area (in the area of student’s research). The other two areas will be minor areas (of the student’s choice, but approved by the Doctoral Program Council) and will have one examiner each.
4. The major area will require both written and oral examinations. Examination in minor areas will be written only.

5. The student will select the examination areas, which must then be approved by the Doctoral Program Council. The Doctoral Program Council will assign the examiners for each of the areas selected.
6. The Doctoral Program Council will review and approve the examination results.
7. A student failing the qualifying examination the first time will be allowed to take it again; however, if the student fails it the second time, he/she will be terminated from the program.

**Preliminary Examination**

Following successful completion of the required coursework and the qualifying examination, the student is required to take a Preliminary Examination to test his/her knowledge of the research area. The Preliminary Examination will typically be an oral examination administered by the dissertation committee following a presentation (in both written and oral forms) of the student’s dissertation proposal. A student is not permitted to take the Preliminary Examination before he/she passes the Qualifying Examination. The student must also be in good academic standing with a cumulative GPA of 3.0 (B+ or better) in order to be able to take the Preliminary Examination.

1. The student must submit a written dissertation proposal (which will be prepared in consultation with the dissertation advisor) to the Doctoral Program Council at least 15 days and the dissertation committee at least 10 days in advance of open oral presentation in defense of the proposal.
2. The Doctoral Program Council must approve the dissertation topic, proposal outline, and the dissertation committee prior to the preliminary examination.
3. The entire dissertation committee must be present during the preliminary examination and approve the dissertation proposal. The oral presentation will be open to other interested faculty and students.

**Candidacy**

A student will become a candidate for the Ph.D. degree after completing the required coursework with a minimum 3.3 GPA and after passing both qualifying and preliminary examinations. At this point, the student will be allowed to pursue the dissertation work.

**Dissertation**

**Dissertation Committee**

The dissertation committee will include a minimum of four faculty members. One of these members must be from outside the department of the dissertation faculty advisor. The faculty advisor will serve as the chair of the dissertation committee. Depending on the dissertation topic, other members, including a qualified industry member, may be added to the dissertation committee. The industry member’s curriculum vitae must be submitted to the Doctoral Program Council for approval.

All members of the dissertation committee are responsible for reading the dissertation and submitting their written evaluations on the dissertation to the Doctoral Program Council at least one week prior to the oral dissertation defense.

**Dissertation and Dissertation Defense**

The dissertation must include original research work of archival quality. The student must submit a written copy of the dissertation to the dissertation committee for review and approval at least a month before the oral defense. Conformity with format will be checked by the Office of
the Graduate Board in the Provost’s office. The work must be defended at a final oral examination open to other faculty, students, and interested public. The dissertation committee members must be present at the dissertation defense.

Other Requirements
While there will be no formal residency requirements for the part time students, it is expected that they will spend sufficient time on campus for conducting research, interacting with other graduate students, and fostering intellectual activities. All students in the Ph.D. program will be required to attend graduate seminars in the College of Engineering and Computer Science. After attaining candidacy, each Ph.D. student will be required to present at least one seminar per year on his/her research until the dissertation is completed. All Ph.D. students will be required to attend these research seminars. After attaining candidacy, each Ph.D. student must spend at least 12 hours per week on campus working on his/her research and discussing research issues with faculty and fellow students.

Additional Information
Additional information on Ph.D. programs can be found at: umdearborn.edu/cecs/graduate-programs/degree-programs

Bioengineering

The Program
The master’s degree in bioengineering is a 30-credit-hour program designed to prepare students in an area of rapid growth and profound impact on society. The curriculum consists of courses specifically designed to provide a comprehensive background in the bioengineering field. Bioengineering courses are 3 credit hours and most are offered in the evening from 6:00 to 8:45 p.m.

Degree Requirements
The MSE in bioengineering is offered through the Horace H. Rackham School of Graduate Studies at the University of Michigan. The degree requirements for this program consist of a minimum of 30 graduate-level semester credit hours (beyond an undergraduate degree from an accredited engineering program) and includes 6 credit hours of core courses, 18 credit hours of bioengineering elective courses, and 6 credit hours of cognate elective courses.

Laboratory Facilities
The bioengineering laboratory is designed to provide students with hands-on experience in tissue engineering, biomechanics, and developing and characterizing biomaterials. The laboratory houses standard equipment and facilities required for biomaterial development, biomechanical testing, and tissue engineering. Equipment available for biomechanical testing includes eight axial test machines, a high rate tensile/compressive impact tester, a high speed imaging system, environmental chambers, and assorted fixtures.

Faculty
The BENG program faculty are engaged in research in orthopaedic biomechanics, human movement, ocular biomechanics, impact safety, biomaterials, tissue engineering, hypoxia, protein engineering, cellular engineering, biomaterialization, biomimetics, biopreservation, bioprocessing, drug delivery, nanotheranostics, pharmaceutical formulation, microspectroscopy, thermogravimetrics, biophotonics, microoptics, biosensors, MEMS, and microfluidics.

Assistantships/Financial Assistance
Research assistantships may be available to exceptionally qualified students who are not otherwise employed. Tuition scholarships are available to qualified full-time graduate students. Find out more about bioengineering faculty and their research areas (http://umdearborn.edu/cecs/departments/mechanical-engineering/our-faculty-research).

Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 520</td>
<td>Adv Molecular and Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>ME 518</td>
<td>Advanced Engineering Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Bioengineering Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 521</td>
<td>Biomats and Biochem Interface</td>
<td>3</td>
</tr>
<tr>
<td>BENG 526</td>
<td>Fundamentals of Drug Delivery</td>
<td>3</td>
</tr>
<tr>
<td>BENG 550</td>
<td>Biomed Optics and Biophotonics</td>
<td>3</td>
</tr>
<tr>
<td>BENG 551</td>
<td>Microfluidics</td>
<td>3</td>
</tr>
<tr>
<td>BENG 560</td>
<td>Nanobiosystems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>BENG 570</td>
<td>Orthopedic Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>BENG 571</td>
<td>Impact Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>BENG 575/ME 595</td>
<td>Regenerative Engineering</td>
<td>3</td>
</tr>
<tr>
<td>BENG 595</td>
<td>Digital Manufacturing</td>
<td>3</td>
</tr>
</tbody>
</table>

BENG 600 | Study or Research in BENG          | 1-3          |

Cognate Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 552</td>
<td>Med &amp; Env Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 561</td>
<td>Advances in Cell Biology</td>
<td>2</td>
</tr>
<tr>
<td>CIS 515</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CIS 551</td>
<td>Advanced Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ECE 552</td>
<td>Fuzzy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 554</td>
<td>Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 554</td>
<td>Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 560</td>
<td>Modern Control Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 580</td>
<td>Digital Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5831</td>
<td>Pat Rec &amp; Neural Netwks</td>
<td>3</td>
</tr>
<tr>
<td>ECE 585</td>
<td>Pattern Recognition</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 501</td>
<td>Human Factors &amp; Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 510</td>
<td>Probability &amp; Statistical Mod</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 511</td>
<td>Design and Analysis of Exp</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>IMSE 514</td>
<td>Multivariate Statistics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 543</td>
<td>Industrial Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 544</td>
<td>Industrial Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 546</td>
<td>Safety Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 561</td>
<td>Total Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 567</td>
<td>Reliability Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 504</td>
<td>Dynamical Systems</td>
<td>3</td>
</tr>
<tr>
<td>MATH 514</td>
<td>Finite Difference Method for Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 516</td>
<td>Finite Element Method for Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 520</td>
<td>Stochastic Processes</td>
<td>3</td>
</tr>
<tr>
<td>MATH 523</td>
<td>Linear Algebra with Applications</td>
<td>3</td>
</tr>
<tr>
<td>MATH 554</td>
<td>Fourier and Boundary</td>
<td>3</td>
</tr>
<tr>
<td>MATH 555</td>
<td>Functions and Bivariate Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 562</td>
<td>Mathematical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>MATH 572</td>
<td>Introduction to Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 573</td>
<td>Matrix Computation</td>
<td>3</td>
</tr>
<tr>
<td>ME 510</td>
<td>Finite Element Methods</td>
<td>3</td>
</tr>
<tr>
<td>ME 522</td>
<td>Advanced Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>ME 525</td>
<td>Computational Thermo-Fluids</td>
<td>3</td>
</tr>
<tr>
<td>ME 540</td>
<td>Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>ME 542</td>
<td>Advanced Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 563</td>
<td>Advanced Instrument and Control</td>
<td>3</td>
</tr>
<tr>
<td>ME 571</td>
<td>Convection Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME 572</td>
<td>Convection Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>STAT 530</td>
<td>Applied Regression Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 535</td>
<td>Data Analysis and Modeling</td>
<td>3</td>
</tr>
<tr>
<td>STAT 545</td>
<td>Reliability and Survival Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 550</td>
<td>Multivariate Statistical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 560</td>
<td>Time Series Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**BENG 520  Adv Molecular and Cell Biology  3 Credit Hours**
This course introduces the cell and molecular biology concepts from an engineering perspective and provides the foundation for modern biotechnology and bioengineering. This course is designed for a first year engineering graduate student to develop a comprehensive understanding of relevant applications in biology, including biochemical, cellular organizational, metabolic and genetics aspects. Advanced concepts including genomics, molecular biology, recombinant DNA technology and evolution are discussed. The course provides exposure to several key techniques used in biological engineering laboratories. Students will have chance to present and discuss individual application through team project.  (YR)

**Restriction(s):**
Can enroll if Level is Graduate or Doctorate or Rackham

**BENG 521  Biomaterials and Biochem Interface  3 Credit Hours**
The course will provide graduate-level foundation on biomaterials science and principles. Specifically, the course will involve discussion on the importance of surfaces and interfaces in biomaterial function and elements controlling host responses to materials, introduction to biomimetic and rational designing approaches, and develop critical analyses of biomaterials through reading research papers and developing projects. (YR)

**Restriction(s):**
Can enroll if Level is Graduate or Rackham or Doctorate

**BENG 526  Fundamentals of Drug Delivery  3 Credit Hours**
This course is designed to provide students with an understanding on the concepts in drug delivery from an engineering perspective. The course will cover drug delivery mechanisms, quantitative understanding of drug transport, nanotechnology, drug delivery devices, toxicity and immune response, FDA regulations, clinical trials and technology transfer. The course will conclude with a design project on nanoparticles development for targeted drug delivery. (YR)

**Restriction(s):**
Can enroll if Level is Doctorate or Graduate or Rackham

**BENG 550  Biomedical Optics and Biophotonics  3 Credit Hours**
The recent explosion of interest in minimally invasive medical diagnostics has been fueled in part by the development of novel optics and photonics techniques and instrumentation designed specifically for medical applications. A large number of optically-based imaging and sensing diagnostics are now in use in both the research laboratory and medical clinic. Topics include engineering design principles of optical instrumentation for medical diagnostics, elastic and inelastic light scattering theory and biomedical applications, confocal and multiphoton microscopy, light propagation and optical tomographic imaging in biological tissues, and design of minimally invasive spectroscopic diagnostics. (YR)

**Restriction(s):**
Can enroll if Level is Rackham or Doctorate or Graduate

**BENG 551  Microfluidics  3 Credit Hours**
Microscaled systems and devices have enhanced reaction rates, predictable fluidic mechanics, reduced reagent volumes, and also lowered cost of manufacturing. These advantages benefit many biomedical applications that require sensitive molecular detection in robust and economical devices. In this course, a range of microsystem techniques will be discussed, including those based on Microfluidics, BioMEMS, and Optofluidics. The lectures will meet twice a week, one hour each, and will be accompanied by student-driven design projects that will be conducted in 3-hour laboratories. (YR)

**Restriction(s):**
Can enroll if Level is Doctorate or Graduate or Rackham

**BENG 556  Nanobiosystems Engineering  3 Credit Hours**
Nanobiosystems Engineering is an emerging frontier in nanotechnology. It integrates materials science, bioengineering, physics and life science with the biological and biochemical applications. This fast-developing interdisciplinary field holds the promise to solve many of the medical problems of future. The course will introduce advanced concepts related to nanomaterials and nanofabrication and their application in medicine. The course will also focus on design and development of nanodevices for the applications of pharmaceuticals and healthcare. Typical applications including nano-sensor, targeted drug delivery, and tissue engineering will also be discussed. Students in Bioengineering will have chance to present and discuss individual application through team project. (YR)

**Restriction(s):**
Can enroll if Level is Doctorate or Graduate or Rackham

**BENG 560  Orthopedic Biomechanics  3 Credit Hours**
This course applies the field of orthopedics to biomechanics. Structure and function of the musculoskeletal system in the intact and pathologic states will be reviewed. Further discussion will focus on the design of orthopedic implants for the spine and the appendicular skeleton. Biomechanical principles of fracture repair and joint reconstruction will also be addressed. (YR)

**Restriction(s):**
Can enroll if Level is Rackham or Doctorate or Graduate
BENG 571  Impact Biomechanics  3 Credit Hours
This course focuses on the understanding of the behavior of human organs, bone and tissue at their point of mechanical or functional failure. Topics will include research methods in injury biomechanics, injury tolerance of the structures and materials of the head, brain, spine, thorax, abdomen and extremities and injury prevention focusing on safety equipment. Federal motor vehicle safety standards will be discussed. (YR)
Restriction(s):
Can enroll if Level is Rackham or Rackham or Doctorate

BENG 575  Regenerative Engineering  3 Credit Hours
This course will discuss principles of tissue engineering whereby the properties of stem as well as primary cells, growth factors, and extracellular matrix and their impact in the development of engineered tissue constructs will be explored. In addition, the course will also focus on supporting/enabling technologies typically utilized in engineering these constructs including nano-and micro-fabrication techniques, 3D printing, micro-patternning as well designing principles of bioreactors, and drug and gene delivery techniques. Additionally, various tissue engineering applications will be discussed including synthetic tissues and organs that are currently under development for regenerative medicine application. (YR)
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate

BENG 595  Digital Manufacturing  3 Credit Hours
This combined lecture and hands on project course aims to train students to optimize the interplay of materials, people, machines and profitability. The course introduces methods to identify product concepts with commercial potential. Student teams will perform market analysis and explore the intellectual property space around their ideas and rapidly iterate them into a final prototype via direct digital manufacturing (e.g., 3D CAD/CAM files manifested via digital printing or machining). Advanced instruction on direct digital manufacturing tools will be given, and customer response will be used as feedback. Early stage prototypes will progress into more sophisticated designs, scaling up (cost, pricing, tooling, process flow and automation) scenario planning for mass manufacturing as well as Failure Mode Effect Analysis (FMEA) will be discussed. (W,YR)
Restriction(s):
Can enroll if Level is Doctorate or Graduate or Rackham
Can enroll if College is Engineering and Computer Science

BENG 600  Study or Research in BENG  1 to 3 Credit Hours
Individual study or research in an area of bioengineering under supervision of a faculty member. The student will submit a written report at the close of the term. (YR)
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate

BENG 699  Master's Thesis  1 to 6 Credit Hours
Research project in the area of bioengineering conducted under supervision of a program faculty member. While guided by a faculty member, a student electing this course is expected to carry out the work him-or herself. Successful completion of the course requires completion and public defense of a written thesis. A student must satisfactorily complete all 6 credit hours, which can be distributed over multiple semesters. (YR)
Restriction(s):
Can enroll if Level is Rackham or Graduate

* An asterisk denotes that a course may be taken concurrently.

Computer Engineering

The ECE Department offers, through the Rackham School of Graduate Studies, an evening program of 30 credit hours, leading to the degree of Master of Science in Engineering (Computer Engineering). Students desiring admission to the program must have earned a Bachelor's degree in Electrical and/or Computer Engineering with an overall GPA of 3.0 or higher. Students whose undergraduate background is in a field other than Electrical or Computer Engineering may be given conditional admission and would be required to take preparatory courses in electrical and/or computer engineering as described in section V. Students admitted to the program are required to take courses as specified below. Students must earn a B or better in every graduate course to be credited toward the degree requirements. However, a maximum of two grades of B- will be accepted. In addition, students must maintain a cumulative GPA of 3.0 or higher in every semester. Students may be placed on probation if their cumulative GPA falls below 3.0. Finally, a cumulative GPA of 3.0 or higher is required in order to be eligible to receive the MSE (CE) degree. All students should be familiar with the Rackham School of Graduate Studies Handbook.

Specific course requirements are described next.

This degree program is available both on campus and via the Internet.

Specific Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| Core Courses
| Required:                           |              |
| ECE 554  | Embedded Systems                   | 3            |
| Two Courses from the following list:|              |
| ECE 570  | Computer Networks                  |              |
| ECE 575  | Computer Architecture              |              |
| ECE 5752 | Reconfigurable Computing           |              |
| ECE 578  | Advanced Operating Systems         |              |

Concentration Courses

Select three courses from one or more of the concentrations areas:

Computer Architecture and Design: 1
- ECE 514  VLSI Design
- ECE 528  Cloud Computing
- ECE 5542 Embedded Sig Proc and Control
- ECE 574  Adv Sftwr Technq in Eng Appl
- ECE 575  Computer Architecture
- ECE 5752 Reconfigurable Computing
- ECE 675  Computer Architecture II

Networks and Communications: 1
- ECE 526  Multimedia Comm Sys
- ECE 535  Mob Dev & Ubiqys Comp Sys
- ECE 550  Communication Theory
- ECE 5541 Embedded Networks
- ECE 570  Computer Networks

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Computer Engineering
Control Systems

Control systems are the critical center of any vehicle system. Examples of control systems are numerous and multifaceted: climate control for passenger comfort in an automobile, automatic cruise control, engine control and pollution control are some typical illustrations. Design of control systems for practical applications requires a through understanding of physical models of the process, mathematical modeling techniques, transient behavior of systems and dynamic characteristics of a physical system.

The Control Systems certificate program will introduce the participants to mathematical techniques of system analysis, use of software, such as Matlab, to enhance the student’s experience, system modeling, continuous and discrete time control techniques, including analog and digital PID controllers, digital control, fuzzy logic control, neural network controller, etc. At the next level, participants will be introduced to multivariable control (control of several interacting variables of a physical process) and design strategies for multivariable processes. Finally, the program will introduce some basic concepts in nonlinear control and simple design techniques. Several case studies will be presented to enhance the learning experience. Group design projects will be assigned to ensure that the participants understand the design process. (12 credit hours)

Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 552</td>
<td>Fuzzy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5121</td>
<td>Mod &amp; Des of Electric Cir&amp;Sys</td>
<td>3</td>
</tr>
<tr>
<td>ECE 560</td>
<td>Modern Control Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 565</td>
<td>Digital Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 567</td>
<td>Nonlinear Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5831</td>
<td>Pat Rec &amp; Neural Netwks</td>
<td>3</td>
</tr>
</tbody>
</table>

Please choose four courses to complete the required 12 credit hours.

Electric Energy Technology

This certificate program introduces theories and technologies in electric energy and related applications. Topics include power electronics, power system analysis, electric drives, motor drives, electric aspects of hybrid vehicles, and practical aspects of the design of power electronics devices. (12 credit hours)

This program is available on campus only.

Required Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 541</td>
<td>Intro to Electrical Energy Sys</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE/AENG 510</td>
<td>Vehicle Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 517</td>
<td>Adv Pwr Electrcns&amp;Motor Drvs</td>
<td>3</td>
</tr>
<tr>
<td>ECE 542</td>
<td>Intr to Pwr Mgmt &amp; Reliability</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5462</td>
<td>Elec Aspects of Hybrid Vehicle</td>
<td>3</td>
</tr>
</tbody>
</table>

Electrical Engineering

The ECE Department offers, through the Rackham School of Graduate Studies, an evening program of 30 credit hours, leading to the degree
of Master of Science in Engineering (Electrical Engineering). Students desiring admission to the program must have earned a Bachelor’s degree in Electrical and/or Computer Engineering with an overall GPA of 3.0 or higher. Students whose undergraduate background is in a field other than Electrical or Computer Engineering may be given conditional admission and would be required to take preparatory courses in electrical and/or computer engineering as described in section V. Students admitted to the program are required to take courses as specified below. Students must earn a B or better in every graduate course to be credited toward the degree requirements. However, a maximum of two grades of B- will be accepted. In addition, students must maintain a cumulative GPA of 3.0 or higher. Students whose undergraduate background is in a field other than Electrical/Computer Engineering with an overall GPA of 3.0 or higher are required to take preparatory courses as specified below. Students may be placed on probation, if their cumulative GPA falls below 3.0. Finally, a cumulative GPA of 3.0 or higher is required, in order to be eligible to receive the MSE (CE) degree. All students should be familiar with the Rackham School of Graduate Studies Handbook.

This degree program is available both on campus and via the Internet.

### Specific Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>Select three courses from the following list:</td>
<td>9</td>
</tr>
<tr>
<td>ECE 500</td>
<td>Math Mthds for Elec &amp; Comp Eng</td>
</tr>
<tr>
<td>ECE 550</td>
<td>Communication Theory</td>
</tr>
<tr>
<td>ECE 560</td>
<td>Modern Control Theory</td>
</tr>
<tr>
<td>ECE 580</td>
<td>Digital Signal Processing</td>
</tr>
</tbody>
</table>

### Concentration Courses

Select three courses from one or more of the concentration areas below: 9-11

- Control Systems:
  - ECE 505 Intro to Embedded Systems
  - ECE 519 Adv Topics in EMC
  - ECE 552 Fuzzy Systems
  - ECE 560 Modern Control Theory
  - ECE 565 Digital Control Systems
  - ECE 567 Nonlinear Control Systems
  - ECE 5831 Pat Rec & Neural Netwks

- Digital Signal Processing:
  - ECE 512 Analog Filter Design
  - ECE 529 Intro to Computer Music
  - ECE 5542 Embedded Sig Proc and Control
  - ECE 580 Digital Signal Processing
  - ECE 5802 Multirate Sig Proc w/App
  - ECE 582 Intro to Statistical DSP
  - ECE 5831 Pat Rec & Neural Netwks
  - ECE 584 Speech Processes

- Intelligent Systems:
  - ECE 5251 MM Design Tools I
  - ECE 535 Mob Dev & Ubiqys Comp Sys
  - ECE 537 Data Mining
  - ECE 576 Information Engineering
  - ECE 579 Intelligent Systems
  - ECE 580 Digital Signal Processing

### Professional Electives (6 credit hours)

Students may complete the professional elective in several ways: (1) Elect the thesis ECE 699 (6 hours) to work under the supervision of a faculty advisor, (2) Take direct study by ECE 591 (3 credits), and one EE course listed above, (3) take any two EE courses listed above.

### Cognates (4-6 credit hours)

Students should select a minimum of 4 and a maximum of 6 credit hours of courses from other disciplines. Some courses from outside ECE may not meet cognate requirement. Please check with the ECE Department prior to registering.

### Preparatory Courses

Students with inadequate background in Electrical/Computer Engineering may be required to meet with the department graduate advisor to determine the need for preparatory courses.

### For further information contact:

Department of Electrical and Computer Engineering
University of Michigan-Dearborn, 4901 Evergreen Road
Room 206 ELB, Dearborn, MI 48128-2406
Tel: 313-593-5420 Fax: 313-583-6336
E-mail: umd-ecegrad@umich.edu

### Energy Systems Engineering

Energy Systems Engineering is a 30 credit hour program, designed to provide systems-based knowledge in energy engineering through four core courses and in-depth knowledge in automotive energy and distributed energy systems through six elective courses. The core courses deal with sustainable energy sources, energy generation and storage, energy and environmental policies, and risk-benefit analysis. The elective courses can be selected from a range of courses offered in mechanical, electrical and manufacturing aspects of energy engineering. The elective courses covers a variety of topics, such as hybrid and electric vehicles, alternative energy systems for vehicles, emissions, power electronics, power distribution, design and manufacturing for environment, etc.

The Energy Systems Engineering program has been designed to address the educational need for graduate students interested in energy engineering. Significant growth and investment is expected to occur...
in energy industries in the State of Michigan and elsewhere in the next several decades. Both small and large energy-related companies are starting up in the State and many of them are located in the metro-Detroit area. The automotive companies are also accelerating research and development in new power generation and propulsion technologies for future vehicles, such as electric batteries and fuel cells. As a result, there is a need for engineers with specialized knowledge in the alternative and renewable energy production, utilization and distribution.

**Online program option:**
The Energy Systems Engineering program is also offered online through the Distance Learning Network (https://umdearborn.edu/cecs/extended-learning-outreach/online-learning) (DLN). The online courses utilize video streaming of the lectures given on campus. The online students have the opportunity to interact with the instructors and with fellow students (both on campus as well as online) through CANVAS. The class lectures, notes and discussions are posted on CANVAS for online students’ access.

**Program Goals:**
To provide students with systems-oriented graduate level knowledge in the fields of energy systems engineering.

**Learning Outcomes:**
1. A strong foundation in the theoretical principles and techniques from science, engineering, and mathematics needed for advanced engineering design and development.
2. An ability to use modern engineering software, processes, devices, and diagnostic tools for advanced engineering design and development.

**Engineering Management**
For general master’s degree requirements at the Rackham School of Graduate Studies, see: www.rackham.umich.edu/policies/academic_policies/ (http://www.rackham.umich.edu/policies/academic_policies)

This program is available both on campus and via the Internet.

**Admission**
Admission to the program as a regular student requires a BS degree in engineering, or a degree in math, computer science, or a physical science earned from an accredited program with an average of B or better coupled with extensive experience in engineering. Each applicant will be required to present official, complete transcripts of prior college work. Two letters of recommendation are required for admission. At least one letter must be from someone familiar with the candidate’s academic performance. An entering student should have completed one course in probability and statistics. Deficiencies in prerequisites may be made up after entrance to the Graduate School; however, credits received in courses elected to make up the deficiencies do not count toward the degree.

**Advanced Standing**
Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Rackham School of Graduate Studies regulations. Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master’s or professional degree from U-M/non-Rackham departments and programs (including Dearborn and Flint).

**Degree Requirements**
The Master of Science in Engineering Management requires a minimum of 36 graduate credit hours.

Minimum Grade Requirement in addition to maintaining a minimum cumulative GPA of 3.0 or higher every semester:
1. Courses in which grades of C- or below are earned cannot be used to fulfill degree requirements.
2. No more than two courses in which grades of B- or below are earned can be used to fulfill degree requirements.
A minimum of a 3.0 cumulative GPA or higher is required at the time of graduation.

**Specific Course Requirements**
The program of study must satisfy the following distribution and course requirements:

1. **Engineering Management core courses, 18 credit hours**
   - **Code** | **Title** | **Credit Hours**
   - EMGT 500 | Management for Engineers | 3
   - EMGT 505 | Systems Engineering | 3
   - EMGT 520 | Prod & Oper Engineering I | 3
   - EMGT 525 | Tot Qua Mgmt and Six Sigma | 3
   - EMGT 570 | Enterprise Information Systems | 3
   - EMGT 580 | Mgt of Prod and Proc Design | 3

2. **Business requirements, 12 credit hours**
   - **Code** | **Title** | **Credit Hours**
   - ACC 505 | Devel & Interp Financial Info | 3
   - Choose 3 courses from the list below:
     - BE 530 | Econ Analysis: Firm & Consumer | 3
     - FIN 531 | Fin Fundament & Value Creation | 3
     - HRM 561 | Human Resource Management | 3
     - MKT 515 | Marketing Management | 3
     - OB 510 | Organization Behavior | 3

3. **Capstone Project, 2 credit hours**
   - **Code** | **Title** | **Credit Hours**
   - EMGT 591 | Capstone Project in EMGT | 2

4. **Electives, 3 credit hours**
   - **Code** | **Title** | **Credit Hours**
   - Approved Electives, take one class from the list below:
     - IMSE 501 | Human Factors & Ergonomics | 3
     - IMSE 505 | Optimization | 3
     - IMSE 511 | Design and Analysis of Exp | 3
     - IMSE 514 | Multivariate Statistics | 3
     - IMSE 515 | Fundamentals of Program Mgt | 3
     - IMSE 516 | Project Management and Control | 3
     - IMSE 517 | Managing Global Programs | 3
     - IMSE 519 | Quan Meth in Quality Engin | 3
     - IMSE 5205 | Eng Risk-Benefit Analysis | 3
ICSE 5215  Program Budget, Cost Est & Con  3
ICSE 538  Intelligent Manufacturing  3
ICSE 545  Vehicle Ergonomics I  3
ICSE 546  Safety Engineering  3
ICSE 577  User Interface Des & Analys  3
ICSE 555  Supply Chain Management  3
ICSE 557  Reliability Analysis  3
ICSE 581  Prod & Oper Engineering II  3
ICSE 593  Vehicle Package Engineering  3
ICSE 606  Advanced Stochastic Processes  3

Additional electives from units in UM-Dearborn could also be considered with advisors approval.

5. Work Experience requirement—minimum of two years in an engineering job function for students with an undergraduate degree in a field other than engineering.

6. Thesis or Research Essay—students, with the approval of their graduate advisor, may elect a master's thesis for no more than five credit hours.

Certificate offered on Campus and via Distance Learning.

Coursework

Game Design

The purpose of the certificate program in game design is to provide interested students with the theoretical knowledge and practical experience needed to program computer games at the professional level. The core courses included in this program are taught from a software engineering perspective and also include game programming techniques. The elective courses are intended to allow students to strengthen their software engineering backgrounds and to explore advanced areas of computer science important to game programmers. (12 credit hours)

Certificate offered on Campus and via Distance Learning.

Required Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 587</td>
<td>Computer Game Design and Impl</td>
<td>3</td>
</tr>
<tr>
<td>CIS 588</td>
<td>Computer Game Design II</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete 2 courses from the following (6 credits):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 515</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CIS 535</td>
<td>Wireless Tech/Pervasive Cmptg</td>
<td>3</td>
</tr>
<tr>
<td>CIS 552</td>
<td>Inf Vis &amp; Multimedia Gaming</td>
<td>3</td>
</tr>
<tr>
<td>CIS 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Industrial and Systems Engineering

For general master's degree requirements at the Rackham School of Graduate Studies, see: http://www.rackham.umich.edu/policies/academic_policies/ (http://www.rackham.umich.edu/policies/academic_policies)

Specific requirements of the program are described below.

This degree program is available both on campus and via the Internet.

Admission

Admission to the program as a regular student requires a BS degree in Engineering, a physical science, computer science, or applied mathematics earned from an accredited program with an average of B or better. Each applicant will be required to present a complete transcript of prior college work. An entering student should have already completed at least one course in probability and statistics and one course in operations research. Deficiencies in prerequisites may be made up after entering the graduate school; however, credits received in courses elected to make up the deficiencies do not count toward a degree. Students who have not fulfilled the requirements of the BS in Industrial and Systems Engineering should communicate with the program advisor regarding the requirements to be met.

Two letters of recommendation are required for admission. At least one letter of recommendation must be from the applicant's undergraduate academic institution.

Degree Requirements

The degree MSE in I&SE requires a minimum of 30 credit hours. No comprehensive final examination is required.

Minimum Grade Requirement in addition to maintaining a minimum cumulative GPA of 3.0 or higher every semester:
1. Courses in which grades of C- or below are earned cannot be used to fulfill degree requirements.
2. No more than two courses in which grades of B- or below are earned can be used to fulfill degree requirements.

A minimum of a 3.0 cumulative GPA or higher is required at the time of graduation.

Advanced Standing Provision

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Rackham School of Graduate Studies regulations. Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master's or professional degree from U-M/non-Rackham departments and programs (including Dearborn and Flint).

Degree Requirements

The MSE in Industrial and Systems Engineering requires a minimum of 30 credit hours.
## Specific Course Requirements

The program of study must satisfy the following distribution and course requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMSE 511</td>
<td>Design and Analysis of Exp</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 501</td>
<td>Human Factors &amp; Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 580</td>
<td>Prod &amp; Oper Engineering I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Concentration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A minimum of 12 credit hours from the three concentration areas.</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>All four courses can be taken from one concentration area or any combination of the three concentration areas below.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

## Concentrations

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial Systems Engineering Concentration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Factors and Ergonomics:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMSE 543</td>
<td>Industrial Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 546</td>
<td>Safety Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 548</td>
<td>Human Factors</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 577</td>
<td>User Interface Des &amp; Anlsis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 593</td>
<td>Vehicle Package Engineering</td>
<td>3</td>
</tr>
<tr>
<td>AENG 546</td>
<td>Vehicle Ergonomics II</td>
<td>3</td>
</tr>
<tr>
<td><strong>Operations Research &amp; Management Science:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMSE 505</td>
<td>Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 514</td>
<td>Multivariate Statistics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5205</td>
<td>Eng Risk-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5215</td>
<td>Program Budget, Cost Est &amp; Con</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 559</td>
<td>System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 605</td>
<td>Advanced Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 606</td>
<td>Advanced Stochastic Processes</td>
<td>3</td>
</tr>
<tr>
<td><strong>Integrated Design and Manufacturing Engineering Concentration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Systems Design:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMSE 513</td>
<td>Robust Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 519</td>
<td>Quan Meth in Quality Engin</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 561</td>
<td>Tot Qual Mgmt and Six Sigma</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 567</td>
<td>Reliability Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Manufacturing &amp; Automation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMSE 502</td>
<td>Computer-Integrated Mfg</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 538</td>
<td>Intelligent Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5655</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 581</td>
<td>Prod &amp; Oper Engineering II</td>
<td>3</td>
</tr>
<tr>
<td><strong>Information Systems Concentration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Systems Management:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMSE 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 556</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 557</td>
<td>Comp Networks and Comm</td>
<td>3</td>
</tr>
<tr>
<td><strong>Enterprise Information Systems:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At least two graduate-level cognate courses for a minimum of six credit hours each in departments other than IMSE must be elected.

The remaining credit hours may be selected with the approval of the graduate advisor.

With the approval of their graduate advisor, students may substitute a master's thesis for no more than six credit hours of graduate coursework. Students choosing the thesis option are required to elect a minimum of 9 credit hours from the concentration electives, rather than the 12 credit hours stipulated above for the concentration areas. Students must complete 2 of the courses from one of the concentration areas.

## Dual Degree, MBA/MSE-Industrial Systems Engineering

The MBA/MSE-Industrial and Systems Engineering has been developed to meet the need for professionals who have expertise in both engineering and management.

It is open to students who have completed a bachelor of science degree in engineering, a physical science, computer science, or applied mathematics.

The program is offered jointly by the College of Business and the College of Engineering and Computer Science, through the Horace H. Rackham School of Graduate Studies. It allows students to receive both the MBA and MSE-ISE simultaneously upon completion of the required 57-66 credit hours.

You may complete the program on campus, on-line, or any combination of the two. (The MBA concentrations are optional, and most require a campus presence.) You may enroll on a full- or part-time basis, but course availability is greatest during the fall and winter semesters.

Admission is rolling, and you may begin the program in September or January. May admission is also usually possible for part-time students. Students must apply and be admitted to the MBA and the MSE-ISE programs separately.

University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate business credits during the final semester of their undergraduate program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 555</td>
<td>Decision Support/Expert Sys</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5585</td>
<td>Electronic Commerce</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 564</td>
<td>ABAP/4 Programming</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 570</td>
<td>Enterprise Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5715</td>
<td>Modeling of Int Info Syst</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5725</td>
<td>Object Oriented System Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 574</td>
<td>IS Based Prod Planning &amp; Cont</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 579</td>
<td>Software Int Mfg &amp; Logis Mgmt</td>
<td>3</td>
</tr>
<tr>
<td><strong>Program Management &amp; Product Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMGT 580</td>
<td>Mgt of Prod and Proc Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 517</td>
<td>Managing Global Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

At least two graduate-level cognate courses for a minimum of six credit hours each in departments other than IMSE must be elected.
Program Goals and Objectives

Master of Business Administration

Goal 1: Students will have an understanding of the core business disciplines and be able to apply this knowledge to global business situations.

Objectives: MBA students will:

1. Demonstrate knowledge of disciplinary concepts, terminology, models, and perspectives.
2. Identify business problems and apply appropriate solutions (problem-finding/problem-solving).
3. Integrate knowledge across disciplinary areas (integrative thinking).
4. Apply knowledge in a global environment.

Goal 2: Students will be effective communicators.

Objectives: MBA students will:

1. Demonstrate an ability to effectively communicate in a manner that is typically required of a business professional.

Goal 3: Students will appreciate the importance of ethical/corporate social responsibility principles.

Objectives: MBA students will:

1. Identify and explain alternative approaches to ethical/corporate social responsibility issues.

Admission Prerequisites

Master of Business Administration

• Mathematics admission prerequisite
• GMAT/GRE admission prerequisite

MSE in Industrial and Systems Engineering

• Completion of a bachelor of science degree in engineering, a physical science, computer science, or applied mathematics
• A course in Probability and Statistics equivalent to IMSE 510
• A course in Operations Research equivalent to IMSE 500

Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA Core Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>BE 530</td>
<td>Econ Analysis: Firm &amp; Consumer</td>
<td>3</td>
</tr>
<tr>
<td>BPS 516</td>
<td>Corporate Social Responsib</td>
<td>3</td>
</tr>
<tr>
<td>FIN 531</td>
<td>Fin Fundament &amp; Value Creation</td>
<td>3</td>
</tr>
<tr>
<td>MIS 525</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBA Applied Integrated Management (AIM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International AIM Course:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td>3</td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td></td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td></td>
</tr>
</tbody>
</table>

OB 610 Intrnatl Dimensions of Managmt
OM 571 Supply Chain Management
AIM Capstone:
BPS 535 Strategic Plan and Dec Making

General AIM Courses:
Select two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 616</td>
<td>Corp Acts &amp; Reacts &amp; Firm Val</td>
<td></td>
</tr>
<tr>
<td>BA 605</td>
<td>Mgrl Dec Making</td>
<td></td>
</tr>
<tr>
<td>BPS 585</td>
<td>Managing Strat Innov &amp; Change</td>
<td></td>
</tr>
</tbody>
</table>

MBA Electives or Optional Concentration

Complete at least one of the available concentrations (see below) or choose at least three elective courses.

ISE Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 501</td>
<td>Human Factors &amp; Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 511</td>
<td>Design and Analysis of Exp</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 514</td>
<td>Multivariate Statistics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 580</td>
<td>Prod &amp; Oper Engineering I</td>
<td>3</td>
</tr>
</tbody>
</table>

ISE Concentration

Students must complete four courses from one or more of the ISE Concentration areas below.

Total Credit Hours 57-66

1 Up to three graduate credits may be elected from units other than the College of Business. Elective courses must be approved by the Graduate Program Advisor in advance of course election.

MBA Concentrations

Concentrations are optional, and students may earn more than one. Some concentrations are available online; others require campus enrollment. Concentrations are awarded at the time of graduation.

Accounting

Available on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 601</td>
<td>Information Tech Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC 603</td>
<td>Controllership</td>
<td></td>
</tr>
<tr>
<td>ACC 604</td>
<td>Auditing&amp;Forensic Examination</td>
<td></td>
</tr>
<tr>
<td>ACC 605</td>
<td>International Accounting</td>
<td></td>
</tr>
<tr>
<td>ACC 608</td>
<td>Financial Statement Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Finance

Available online and on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 581</td>
<td>Topics in Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN 651</td>
<td>Invstmnt Proc, Analysis &amp; Mgmt</td>
<td></td>
</tr>
</tbody>
</table>

Select one course from:

Select two courses from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td></td>
</tr>
</tbody>
</table>
### FIN 581
Topics in Corporate Finance

### FIN 651
Investment Proc, Analysis & Mgmt

### FIN 652
Derivatives & Risk Management

### FIN 654
Financial Intermediation

### FIN 655
International Financial Mgt

Total Credit Hours 9

### International Business
Available online and on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 583</td>
<td>Global Econ: Crisis &amp; Growth</td>
<td>3</td>
</tr>
<tr>
<td>FIN 655</td>
<td>International Financial Mgt</td>
<td>3</td>
</tr>
<tr>
<td>MKT 622</td>
<td>Global Marketing</td>
<td>3</td>
</tr>
<tr>
<td>OB 610</td>
<td>Intnati Dimensions of Managmt</td>
<td>3</td>
</tr>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

### Management Information Systems
Available on campus

Choose any three MIS graduate courses other than MIS 525.

### Marketing
Available on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 565</td>
<td>Advanced Marketing Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from:

- MKT 564 | Graduate Market Research
- MKT 620 | Understanding Customers
- MKT 621 | Advertising and Promotion
- MKT 622 | Global Marketing
- MKT 628 | MKT Turning Data into Revenue

Total Credit Hours 9

### Supply Chain Management
Available on campus

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM 571</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from:

- OM 660 | Analy & Des of Supply Chains
- OM 661 | Supply Chain Logis Mgmt
- OM 662 | New Prod Design & Development
- OM 663 | Lean & Six Sigma
- OM 664 | Strategic Sourcing
- OM 665 | IT in SCM

Total Credit Hours 9

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

### ISE Concentrations

#### Industrial and Systems Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 546</td>
<td>Vehicle Ergonomics II</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 543</td>
<td>Industrial Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 546</td>
<td>Safety Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 548</td>
<td>Human Factors</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 577</td>
<td>User Interface Des &amp; Anlsis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 593</td>
<td>Vehicle Package Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Operations Research and Management Science Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 505</td>
<td>Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5205</td>
<td>Eng Risk-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5215</td>
<td>Program Budget, Cost Est &amp; Con</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 559</td>
<td>System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 605</td>
<td>Advanced Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 606</td>
<td>Advanced Stochastic Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Integrated Design and Manufacturing Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 513</td>
<td>Robust Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 519</td>
<td>Quan Meth in Quality Engin</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 561</td>
<td>Tot Qual Mgmt and Six Sigma</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 567</td>
<td>Reliability Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Advanced Manufacturing and Automation Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 502</td>
<td>Computer-Integrated Mfg</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 538</td>
<td>Intelligent Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5655</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 581</td>
<td>Prod &amp; Oper Engineering II</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Information Systems

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 556</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 557</td>
<td>Comp Networks and Comm</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Enterprise Information Systems Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 555</td>
<td>Decision Support/Expert Sys</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5585</td>
<td>Electronic Commerce</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 564</td>
<td>ABAP/4 Programming</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 570</td>
<td>Enterprise Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5715</td>
<td>Modeling of Int Info Syst</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5725</td>
<td>Object Oriented System Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 574</td>
<td>IS Based Prod Planning &amp; Cont</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.
Program Management and Product Development

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMGT 580</td>
<td>Mgt of Prod and Proc Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 517</td>
<td>Managing Global Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

Program Details

Breadth Requirements

- Complete AIM courses in at least 3 different disciplines.
- Complete no more than four AIM, MBA Concentration, and MBA Elective Courses (12 credits) in any single discipline. This does not apply to courses associated with the MSE in ISE portion of the dual-degree program.
- Complete graduate business courses in at least 5 different disciplines.

No single course may be counted toward more than one requirement or concentration in the dual degree program.

Course Waivers and Transfer Credit

Students may waive ACC 505, BE 530, BPS 516, FIN 531, MIS 525, MKT 515, and OB 510 if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, your GPA in courses taken after your first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program.

In addition, up to 6 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Waivers and transfer credit are granted at the discretion of the program faculty.

Ph.D. in Industrial and Systems Engineering

The ISE Ph.D. degree requirements include a minimum of 18 credit hours of coursework (beyond Master’s) and 24 credit hours of Ph.D. dissertation. The ISE Ph.D. is comprised of five major milestones, which all students are required to pass successfully prior to graduation:

- Completion of the required coursework
- Passing the Qualifying Examination on the core coursework
- Filing an approved Plan of Study
- Passing the Preliminary Examination and approval of the advancement to candidacy
- Successful oral defense of an approved written dissertation

Course Requirements

The course curriculum consists of three required core courses (9 credit hours) and three concentration courses (9 credit hours) from the curriculum shown below. The course curriculum also requires a minimum of four credit hours of cognate coursework that may have been satisfied by the student’s Master’s Degree program.

Breadth requirement: The breadth requirement is satisfied by student taking three core courses (9 credit hours) in the program.

Depth requirement: Student must select at least three courses (9 credit hours) from the same concentration area.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMGT 580</td>
<td>Mgt of Prod and Proc Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 517</td>
<td>Managing Global Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognate Requirements

The student can satisfy ISE Ph.D. program cognate requirement in one of the following ways:
• Completion of at least four hours of approved cognate credits, which must be from outside the IMSE department. The minimum acceptable grade for a cognate course is a B.
• Completion of a University of Michigan Master’s degree, which included a cognate component. This coursework must be completed no more than 5 years before admission to the ISE Ph.D. Program.
• Completion of a relevant Master’s degree from another university which had a coursework that meets the expectation of the program cognate requirement. This coursework must be completed no more than 5 years before admission to the ISE Ph.D. Program.

The Preliminary Examination

The Preliminary Examination is an oral examination administered by a student’s Dissertation Committee. The primary purpose of this examination is to test the student on his dissertation proposal to determine whether the research objectives are reasonable and achievable. The examination also provides an opportunity for the committee to determine if the student has enough knowledge to pursue research in the proposed subject area and to pass judgment on the suitability of the proposed research as a dissertation topic. The student must be registered for the semester in which he/she takes his/her preliminary examination. The student makes an oral presentation, which is prepared in consultation with the dissertation advisor, in defense of the dissertation proposal. The oral presentation is open to other interested faculty and students. The entire dissertation committee must be present during the preliminary examination. A majority vote by the committee and a pass vote by the committee chair are required to pass the examination.

Dissertation Committee

Soon after passing the Qualifying Examination but before the Preliminary Examination, the student and the research advisor form a Dissertation Committee. The research advisor is the chair of the student’s Dissertation Committee and works with the student to assemble a committee consisting of appropriate faculty regarding their experience and research interests. The dissertation committee includes a minimum of four faculty members. The chair or one of the co-chairs of the committee must be a member of the IMSE faculty. One of the members of the committee must be cognate member. The cognate member must hold at least a .50 appointment in a graduate program, other than IMSE. Depending on the dissertation topic, other members, including a qualified industry member, may be added to the dissertation committee with the approval of the ISE Ph.D. Program Committee. The dissertation committee must be approved by the ISE Ph.D. Program Committee at least six-weeks before the preliminary examination date.

Advancement to Candidacy

Advancement to candidacy is a significant milestone on the way to the Ph.D. A ISE Ph.D. student should achieve candidacy within three years from the time of initial enrollment in the program. Other requirements to advance to candidacy are as follows:

• Completion of the coursework requirements of the program.
• Completion of the cognate requirement of the program.
• Passing of the Qualifying Examination.
• Submitting approved Plan of Study.
• Passing of the Preliminary Examination.
• Posting a minimum cumulative GPA 3.3 out of 4 at the time of applying for the candidacy.

A student should apply for candidacy as soon as he/she meets all the candidacy requirements. If it has been more than three years since the student started the program, a Petition for Modification or Waiver of Regulation asking for an extension for time to candidacy approved by the ISE Ph.D. Program Committee is required.

Dissertation and Dissertation Defense

After candidacy requirements are met the student may proceed with the dissertation research and writing of the dissertation. The dissertation should document the original contributions made by the candidate as a result of independent research. The research work should be of archival quality. In advance of graduation, the dissertation must be approved by all the members of the student’s dissertation committee. To obtain this approval a student must submit a written copy of the dissertation to the dissertation committee and defend the research work at a final oral examination open to other faculty, students, and interested public. Copies of the dissertation, approved by the research advisor, must be provided to the committee at least two weeks before the oral defense. The copies of the dissertation given to the committee should be in the
final form and must be formatted to meet the standards of Academic Records and Dissertations. The dissertation committee members are required to submit written evaluation of the student’s dissertation prior to oral defense. The dissertation committee members must be present at the dissertation defense. Since the defense examination includes the formal public presentation of the dissertation research, it will be publicized throughout the college and the university. The time between passing the preliminary examination and the dissertation oral defense is at least 14 weeks.

Publication of Research

The ISE Ph.D. program is designed to give a student comprehensive and in-depth knowledge of the chosen professional field and training in research methods. Therefore, the student is required to prepare at least one paper based on his/her dissertation research for submission to a professional journal prior to scheduling the final oral examination.

Time Limit for Completing a Doctoral Degree

Students are expected to complete the degree within five years of achieving candidacy, but no more than seven years from the date of the first enrollment in the ISE Ph.D. program. Students who have not completed their degree within the seven-year limit may petition the ISE Ph.D. Program Committee for an extension of time to degree with a plan for completion. A student who does not complete the degree after two years of extension may be returned to pre-candidacy status and required to meet candidacy requirements again.

Cognate Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 505</td>
<td>Algorithm Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIS 536</td>
<td>Information Retrieval</td>
<td>3</td>
</tr>
<tr>
<td>CIS 550</td>
<td>Obj-Oriet Prog and Its Applic</td>
<td>3</td>
</tr>
<tr>
<td>CIS 556</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 571</td>
<td>Web Services</td>
<td>3</td>
</tr>
<tr>
<td>CIS 579</td>
<td>Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CIS 652</td>
<td>Info Visualztn &amp; Comp Anim</td>
<td>3</td>
</tr>
<tr>
<td>ECE 535</td>
<td>Mob Dev &amp; Ubigys Comp Sys</td>
<td>3</td>
</tr>
<tr>
<td>ECE 542</td>
<td>Intr to Pwr Mgmt &amp; Reliability</td>
<td>3</td>
</tr>
<tr>
<td>ECE 552</td>
<td>Fuzzy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 579</td>
<td>Intelligent Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5831</td>
<td>Pat Rec &amp; Neural Netwks</td>
<td>3</td>
</tr>
<tr>
<td>ECE 644</td>
<td>Advanced Robotics</td>
<td>3</td>
</tr>
<tr>
<td>ECE 679</td>
<td>Adv Intelligent Sys</td>
<td>3</td>
</tr>
<tr>
<td>ME 560</td>
<td>Experimental Methods in Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 552</td>
<td>Sustainable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 567</td>
<td>Reliability Consid in Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 580</td>
<td>Advanced Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 584</td>
<td>Mechanical Behavior of Polymer</td>
<td>3</td>
</tr>
</tbody>
</table>

Information Systems and Technology

For general master’s degree requirements at the Rackham School of Graduate Studies, see: www.rackham.umich.edu/policies/academic_policies/ (http://www.rackham.umich.edu/policies/academic_policies)

Specific requirements of the program are described below.

Admission

Admission to the program as a regular student requires a BS in engineering, a physical science, computer science, applied mathematics, business administration, or liberal arts earned from an accredited program with an average of B or better. An applicant with a lower GPA may be granted conditional/probationary admission consistent with Rackham guidelines. Each applicant will be required to present a complete transcript of prior college work. An entering student should have already completed at least a course each in computer programming, such as C++ or Java and data structures. Deficiencies in prerequisites may be made up after entering the graduate school; however, credits received in courses elected to make up the deficiencies do not count towards a degree.

Two letters of recommendation with at least one from someone familiar with the candidate’s academic performance are also required for admission.

Degree Requirements

The degree MS in IS&T requires a minimum of 30 credit hours.

Advanced Standing

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Rackham School of Graduate Studies regulations. Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master’s or professional degree from U-M/non-Rackham departments and programs (including Dearborn and Flint).

Specific Course Requirements

The program of study must satisfy the following distribution and course requirements:
Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 556 or CIS 556 Database Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IMSE 570 Enterprise Information Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IMSE 5725 Object Oriented System Design or CIS 572</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 9

Concentration (15 credit hours)

Six concentration areas exist in the program. Five of the concentration areas are identified below while the sixth is an individual concentration area that the student develops jointly with the Program Advisor. Each concentration area requires one concentration core course (3 hrs), one cognate course (3 hrs) selected from one of the four remaining concentration areas in the program, and three concentration electives (9 hrs).

Area 1: Information Management Applications

Concentration Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 5715</td>
<td>Modeling of Int Info Syst</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 505</td>
<td>Devel &amp; Interp Financial Info</td>
<td>3</td>
</tr>
<tr>
<td>HRM 561</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5215</td>
<td>Program Budget, Cost Est &amp; Con</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 564</td>
<td>ABAP/4 Programming</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5755</td>
<td>Bus Proc Int using Entrpr Tech</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 586</td>
<td>Big Data Anal &amp; Visulitzn</td>
<td>3</td>
</tr>
<tr>
<td>MKT 515</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Area 2: Supply Chain and Information Systems Design

Concentration Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 5655</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 538</td>
<td>Intelligent Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 559</td>
<td>System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5715</td>
<td>Modeling of Int Info Syst</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 580</td>
<td>Prod &amp; Oper Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 581</td>
<td>Prod &amp; Oper Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 544</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Area 3: Information Security and Quality

Concentration Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 544</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 5715</td>
<td>Modeling of Int Info Syst</td>
<td>3</td>
</tr>
</tbody>
</table>

Area 4: Web Information Management

Concentration Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 562</td>
<td>Web Information Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 525</td>
<td>Web Technology</td>
<td>3</td>
</tr>
<tr>
<td>CIS 527</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 534</td>
<td>Semantic Web</td>
<td>3</td>
</tr>
<tr>
<td>CIS 559</td>
<td>Prin of Social Netwk Science</td>
<td>3</td>
</tr>
<tr>
<td>CIS 568</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 577</td>
<td>User Interface Des &amp; Anlsis</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 577</td>
<td>S/W User Interface Dsgn&amp;Analys</td>
<td>3</td>
</tr>
<tr>
<td>CIS 550</td>
<td>Obj-Oriet Prog and Its Applic</td>
<td>3</td>
</tr>
<tr>
<td>CIS 571</td>
<td>Web Services</td>
<td>3</td>
</tr>
<tr>
<td>CIS 586</td>
<td>Advanced Data Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Area 5: Information Systems Engineering

Concentration Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 586</td>
<td>Advanced Data Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 527</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 568</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 537</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CIS 544</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5715</td>
<td>Modeling of Int Info Syst</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 577</td>
<td>User Interface Des &amp; Anlsis</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 577</td>
<td>S/W User Interface Dsgn&amp;Analys</td>
<td>3</td>
</tr>
<tr>
<td>CIS 578</td>
<td>Advanced Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 562</td>
<td>Web Information Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 550</td>
<td>Obj-Oriet Prog and Its Applic</td>
<td>3</td>
</tr>
<tr>
<td>CIS 575</td>
<td>Software Engineering Mgmt</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives (6 credit hours)

Other CIS, ECE, IMSE and business graduate courses may be taken per advisor approval.

A thesis may be substituted for six hours of electives, on approval by the program director.
Information Systems Engineering

About the Program

Rapid changes in technology and increasing technological sophistication needed to maintain global competitiveness are causing information technology industries to encourage their workforce to advance its knowledge, skills, and expertise through graduate-level education and training. For many engineers, this means education beyond the master’s degree. More specifically, the kind of advanced knowledge needed in niche or specialized areas of emerging technologies can only be offered through doctoral programs that not only allow engineers to acquire and strengthen their own knowledge but also educate them to become technical leaders and technology developers in their own companies. The Ph.D. in Information Systems Engineering is designed to meet the need of engineers who want to be the technology leaders of the future. It is a 50 credit hour postgraduate program and can be pursued either on a full-time or a part-time basis. The classes are held in the evenings for the convenience of working engineers. The areas of specialization available in the program include information management and knowledge engineering, computer networks and computer architecture, intelligent systems and human/computer interaction, graphics and visualization, supply chain informatics, web services and security.

Admission Requirements

The following are the requirements for admission in the Ph.D. program.

1. A bachelor’s degree in engineering or computer science from an accredited program with an expected GPA of 3 or higher on a 4-point scale.
2. A master’s degree in engineering or computer science from an accredited program with an expected GPA of 3.5 or higher on a 4-point scale or 6.5 or higher on a 9-point scale
3. GRE taken within 5 years prior to admission
4. TOEFL for international students (minimum score of 84 in internet-based test)
5. At least one advanced mathematics course at the master’s level (If the student has not taken an advanced math course at the master’s level, an appropriate math course will be recommended as a prerequisite. This course must be successfully completed within the first year of the program.)
6. Three recommendation letters from faculty and/or employer (The recommendation letters must be on official letterhead and indicate the student’s research potential.) Each recommender must also complete the Recommendation for Admission form.
7. A Statement of Purpose describing academic and research background, career goals and educational objectives and research interest

Graduation Requirements

A student must complete a minimum of 50 credit hours (beyond master’s) for graduation. Out of the 50 credit hours, 24 credit hours will be based on coursework (beyond master’s) and 26 credit hours will be based on Ph.D. dissertation.

The student must maintain a GPA of 3.2 out of 4.0 for good academic standing and graduation. Only one B- and no C grade will be allowed in the program.

Qualifying Examination

• The qualifying examination must be taken within 24 months after admission in the program. This will typically occur after finishing the core course, at least two specialization courses, and two courses outside the specialization area.
• The student must be in good academic standing at the time of the qualifying examination.
• The student must select three areas for the qualifying examination and declare one of the areas as the specialization area typically the area of the student’s research.
• There will be two examiners in the specialization area (in the area of student’s research). The other two areas will be minor areas (of the student’s choice, but approved by the Doctoral Program Council) and will have one examiner each.
• The examination in the specialization area will include both written and oral tests. Examination in the minor areas will be written only.
• The student will select the examination areas, which must then be approved by the Doctoral Program Council. The Doctoral Program Council will assign the examiners for each of the areas selected.
• The Doctoral Program Council will review and approve the examination results.
• A student failing the qualifying examination the first time will be allowed to take it again; however, if the student fails it the second time, he/she will be terminated from the program.

Preliminary Examination

• The Doctoral Program Council must approve the dissertation topic, the proposal outline, and the dissertation committee prior to the preliminary examination.
• The student will make an open oral presentation, which has been prepared in consultation with the dissertation advisor, in defense of the proposal.

Candidacy

A student will become a candidate for the Ph.D. degree after completing the required coursework with a minimum GPA 3.2 out of 4.0 and after passing both the qualifying and the preliminary examinations. At this point, the student will be allowed to register for the dissertation work.

Dissertation Committee

The dissertation committee will include a minimum of four faculty members. One of these members must be from outside the College of Engineering and Computer Science. One of the faculty members will be the dissertation advisor and will serve as the chair of the dissertation committee. Depending on the dissertation topic, other members, including a qualified industry member, may be included in the dissertation committee. The industry member’s curriculum vitae must be submitted to the Doctoral Program Council for approval.

Dissertation and Dissertation Defense

The dissertation must include original research work of archival quality. The student must submit a written copy of the dissertation to the dissertation committee for approval. The work must be defended at a final oral examination open to other faculty, students, and the interested public.
Other Requirements
While there are no formal residency requirements for the part time students, it is expected that each Ph.D. student will spend sufficient time on campus for conducting research, interacting with other graduate students, and fostering intellectual activities. All students in the Ph.D. program are required to attend graduate seminars in the College of Engineering and Computer Science. After attaining candidacy, each Ph.D. student is required to present at least one seminar per year on his/her research until the dissertation is completed. All Ph.D. students are required to attend these research seminars. After attaining candidacy, each Ph.D. student is expected to spend at least 12 hours per week on campus working on his/her research and discussing research issues with faculty and fellow students.

Course Curriculum
The course curriculum will consist of one required core course, four specialization courses, three elective courses, and a seminar course. Each student must submit a course plan with specified specialization area within one semester after starting the program.

Core Course (3 credit hours)
The student must complete the core course titled "Information Engineering."

Specialization Courses (12 credit hours)
Four courses must be selected in an area of concentration with prior approval from the director of the doctoral program. At least two of these concentration courses must be 600-level courses.

Elective Courses (9 credit hours)
The student must take three elective courses, at least two of which must be from outside the student's concentration area.

Seminar Course (0 credit hours)
The student must register for and participate in the seminar course each semester after attaining candidacy and until the completion of the dissertation. The seminar course will be of pass/fail type and will not carry any credits.

Dissertation (26 credit hours)
The dissertation will be of pass/fail type and will not carry any letter grades.

Ph.D.-Level Courses
All Ph.D. courses must be 500 level and above. However, not all 500-level courses may be accepted in the Ph.D. program.

Transfer Credit
Up to 9 credit hours for courses from another university will be accepted as transfer credits; however, the Doctoral Program Council must approve the acceptance of transfer credits.

Additional Information
Additional information on Ph.D. programs can be requested from:
The Office of Interdisciplinary Programs,
College of Engineering and Computer Science,
University of Michigan-Dearborn, 116 MSEL,
4901 Evergreen Road,

Dearborn, MI 48128-2406

Intelligent Systems in Engineering Applications
This certificate program introduces students to the core concepts of intelligent systems and a broad range of techniques for building, testing and evaluating intelligent systems. Topics include: intelligent system design, training and evaluation, decision trees, rule based systems, Bayesian learning, Support Vector Machines, neural network systems, and fuzzy systems. A variety of application cases will be studied in the courses under this program. (12 credits hours)

Certificate offered on campus and via distance learning

Required Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 579</td>
<td>Intelligent Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Coursework

Complete 3 courses from the following (9 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 537</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>ECE 552</td>
<td>Fuzzy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 576</td>
<td>Information Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5831</td>
<td>Pat Rec &amp; Neural Netwks</td>
<td>3</td>
</tr>
</tbody>
</table>

Manufacturing Systems Engineering Admission

Admission to the program as a regular student requires a BS degree in Engineering. Students with a degree in computer science or engineering can be admitted provisionally and must take certain undergraduate courses to pave the way for graduate work. Undergraduate degrees must be from an accredited program, and for regular admission must be with an average of B or better. Each applicant should present one complete, official transcripts of all prior college work. In special cases, it may be necessary for applicants to schedule an interview with the program director to review completeness of undergraduate preparation and other qualifications.

In addition to the above admissions requirements, the following are also required.

1. The entering student must have an undergraduate-level background in probability and statistics. Otherwise, the student will be required to take an undergraduate-level statistics course (equivalent to IMSE 317) within the two semesters after his admission. No credit will be given for this course.
2. The entering student must have a background in engineering materials. Otherwise, the student will be required to take either ENGR 250 (or equivalent) as a prerequisite to AENG 587 or ECE 385 (or equivalent) as a prerequisite to ECE 539. No credit will be given for the undergraduate courses.
Degree Requirements

The MSE in Manufacturing Systems Engineering requires a minimum of 30 credit hours.

The accumulated grade point average in the program must be at least a B to receive the degree. No more than one B- will be allowed under any circumstances.

Advanced Standing

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Rackham School of Graduate Studies regulations. Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master’s or professional degree from U-M/non-Rackham departments and programs (including Ann Arbor, Dearborn and Flint).

Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| Core Courses
| The following courses are required:        |              |
| AENG 587 | Automotive Manuf Processes                 | 3            |
| or ECE 539 | Production of Elec Prods                   |              |
| IMSE 5215 | Program Budget, Cost Est & Con            | 3            |
| IMSE 561 | Tot Qual Mgmt and Six Sigma               | 3            |
| IMSE 580 | Prod & Oper Engineering I                 | 3            |
| EMGT 580 | Mgt of Prod & Proc Design                 | 3            |
| Electives
| Select any five courses from the list below: | 15           |
| AENG 584 | Lightweight Automotive Alloys             |              |
| AENG 586 | Design & Mfg: Ltwt Auto Mat               |              |
| AENG 588 | Design&Manufac for Environment            |              |
| AENG 589 | Auto Assembly Systems                     |              |
| AENG 590 | Selected Topics                           |              |
| ECE 516  | Electronic Materials & IC Proc            |              |
| EMGT 541 | Acct Fund for Decision Making             | 3            |
| IMSE 502 | Computer-Integrated Mfg                   |              |
| IMSE 511 | Design and Analysis of Exp                |              |
| IMSE 515 | Fundamentals of Program Mgt               |              |
| IMSE 516 | Project Management and Control            |              |
| IMSE 517 | Managing Global Programs                  |              |
| IMSE 538 | Intelligent Manufacturing                 |              |
| IMSE 5655 | Supply Chain Management                  |              |
| IMSE 581 | Prod & Oper Engineering II                |              |
| ME 580  | Advanced Engineering Materials           |              |
| ME 582  | Injection Molding                         |              |
| ME 585  | Cast Metals in Eng Design                 |              |
| ME 586  | Materials Consid in Manufactur             |              |
| ME 587  | Automotive Composites                     |              |
| HRM 561 | Human Resource Management                 |              |
| OB 510  | Organization Behavior                     |              |
| DS 520  | Applied Statistical Modeling              |              |

A thesis may be submitted in lieu for six hours of electives, on approval by the program director. The thesis work may be a company project if it meets certain requirements.

Mechanical Engineering

A candidate for the Master of Science in Engineering (Mechanical Engineering) must meet the requirements for the Bachelor of Science in Engineering (Mechanical Engineering) degree at this campus, or the essential equivalent to these requirements. The candidate must then complete at least 30 credit hours of graduate work approved by the program advisor/graduate committee with an average grade of at least B covering all courses elected. These 30 credit hours must include two graduate-level cognate courses for a minimum of three credit hours each in a department other than mechanical engineering. Students are not permitted to elect more than two courses outside mechanical engineering.

Students who have not fulfilled the requirements of the bachelor’s degree in mechanical engineering should communicate with the department graduate committee regarding the requirements to be met.

Within the broad framework given above, the student must elect courses to fulfill the following distribution requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 518</td>
<td>Advanced Engineering Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Two courses from Group A</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Two courses from Group B</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>One mathematics or math-related cognate course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>One non-ME 500 level cognate course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three ME graduate courses as Electives</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Thesis optional:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 credit hours, to be deducted from Electives area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

1 Must be taken within the first two terms of enrollments
2 i.e. IMSE 510, IMSE 511, or any 500 level MATH or STAT course

Group A: Mechanical Science Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 510</td>
<td>Finite Element Methods</td>
<td>3</td>
</tr>
<tr>
<td>ME 512</td>
<td>Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ME 514</td>
<td>Advanced Stress Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ME 515</td>
<td>Advanced Mechanics of Solids</td>
<td>3</td>
</tr>
<tr>
<td>ME 516</td>
<td>Special Topics in Mech Eng</td>
<td>3</td>
</tr>
<tr>
<td>ME 519</td>
<td>Basic Comp Methods in Eng</td>
<td>3</td>
</tr>
<tr>
<td>ME 540</td>
<td>Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>ME 542</td>
<td>Advanced Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 543</td>
<td>Vehicle Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 545</td>
<td>Acoustics and Noise Control</td>
<td>3</td>
</tr>
<tr>
<td>ME 547</td>
<td>Powertrains I</td>
<td>3</td>
</tr>
</tbody>
</table>
### Group B: Thermal/Fluid Science Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 548</td>
<td>Automotive Powertrains II</td>
<td>3</td>
</tr>
<tr>
<td>ME 554</td>
<td>Theory of Gearing and Application</td>
<td>3</td>
</tr>
<tr>
<td>ME 556</td>
<td>Stress and Structural Integrity Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 558</td>
<td>Fracture and Fatigue in Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 560</td>
<td>Experimental Methods in Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 563</td>
<td>Advanced Instrument and Control</td>
<td>3</td>
</tr>
<tr>
<td>ME 565</td>
<td>Mechatronics</td>
<td>3</td>
</tr>
<tr>
<td>ME 567</td>
<td>Reliability and Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 570</td>
<td>Powertrain NVH of Elect Veh</td>
<td>3</td>
</tr>
<tr>
<td>ME 580</td>
<td>Advanced Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 581</td>
<td>Materials for Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>ME 582</td>
<td>Injection Molding</td>
<td>3</td>
</tr>
<tr>
<td>ME 583</td>
<td>Mechanical Behavior of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 584</td>
<td>Mechanical Behavior of Polymer</td>
<td>3</td>
</tr>
<tr>
<td>ME 585</td>
<td>Cast Metals in Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 586</td>
<td>Materials Cons in Manufacture</td>
<td>3</td>
</tr>
<tr>
<td>ME 587</td>
<td>Automotive Composites</td>
<td>3</td>
</tr>
<tr>
<td>ME 588</td>
<td>Production of Mech Products</td>
<td>3</td>
</tr>
<tr>
<td>ME 589</td>
<td>Composite Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 591</td>
<td>Degradation of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 595</td>
<td>Digital Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>ME 610</td>
<td>Finite Elem Methods—Nonlinear</td>
<td>3</td>
</tr>
</tbody>
</table>

### Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 516</td>
<td>Special Topics in Mech Eng</td>
<td>3</td>
</tr>
<tr>
<td>ME 521</td>
<td>Dyn and Therm of Comp Flow</td>
<td>3</td>
</tr>
<tr>
<td>ME 522</td>
<td>Advanced Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>ME 525</td>
<td>Computational Thermo-Fluids</td>
<td>3</td>
</tr>
<tr>
<td>ME 528</td>
<td>Fund of Boiling and Condensation</td>
<td>3</td>
</tr>
<tr>
<td>ME 531</td>
<td>Statistical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 532</td>
<td>Combustion Processes</td>
<td>3</td>
</tr>
<tr>
<td>ME 535</td>
<td>Advanced Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 537</td>
<td>Automotive Air Conditioning</td>
<td>3</td>
</tr>
<tr>
<td>ME 538</td>
<td>Vehicle Thermal Management</td>
<td>3</td>
</tr>
<tr>
<td>ME 552</td>
<td>Sustainable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 571</td>
<td>Conduction Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME 572</td>
<td>Convection Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME 573</td>
<td>Radiative Transport of Heat</td>
<td>3</td>
</tr>
<tr>
<td>ME 575</td>
<td>Energy: Sources,Cvrsion,Util</td>
<td>3</td>
</tr>
<tr>
<td>ME 577</td>
<td>Energy Conversion</td>
<td>3</td>
</tr>
<tr>
<td>ME 592</td>
<td>Fuel Cells</td>
<td>3</td>
</tr>
<tr>
<td>ME 596</td>
<td>Internal Combustion Engines I</td>
<td>3</td>
</tr>
<tr>
<td>ME 597</td>
<td>Internal Combustion Engines II</td>
<td>3</td>
</tr>
<tr>
<td>ME 598</td>
<td>Engine Emissions</td>
<td>3</td>
</tr>
<tr>
<td>ME 622</td>
<td>Adv Topics in Fluid Mechanics</td>
<td>3</td>
</tr>
</tbody>
</table>

### Thesis and Independent Study

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 600</td>
<td>Study or Res in Sel Mech Eng</td>
<td>1-3</td>
</tr>
</tbody>
</table>

The accumulated grade average in the master’s program must be at least a B to receive the degree. Further, a grade below B in any course will not be accepted for graduate credit unless, after review of the credit circumstances, the acceptance of the credit is recommended by the graduate committee.

In order to be admitted as an applicant for the master’s degree, students must satisfy the graduate committee of the department that they have completed preparation equivalent to the undergraduate degree requirements in this department and that they are prepared to undertake the advanced courses. In general, the applicants must have maintained B averages as undergraduates. Students will not be given graduate credit for courses equivalent to any which they have been required to take for the bachelor’s degree or for courses required in the undergraduate curriculum of this department.

### Plastic and Composite Materials

Students in this certificate program will be exposed to both design and manufacturing considerations of plastics and composite materials. Particular emphasis will be given to the materials for automotive applications. Processes, properties and design of the materials will be examined, and characteristics of the materials manufactured from different processes will be discussed. (12 credit hours)

### Program and Project Management

For general master’s degree requirements at the Rackham School of Graduate Studies, see: www.rackham.umiich.edu/policies/academic_policies/ (http://www.rackham.umiich.edu/policies/academic_policies)

This degree program is available both on campus and via the Internet.

### Admission

Admission to the program as a regular student requires a BS in engineering, business, economics, math, computer science or other physical sciences and at least two years of practical work experience. The prerequisite for the program is the course work in probability and statistics that can be satisfied by completing IMSE 510 as part of approved electives within the first two semesters of the admission into the program. Two letters of recommendation, with at least one from a person familiar with the candidate’s academic performance, are also required.

Credit: The undergraduate cumulative GPA required is B (3.0/4.0) or better to be accepted as a regular graduate student to the program. An applicant
with a lower GPA may be granted conditional/probationary admission consistent with Rackham guidelines.

Advanced Standing

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Rackham School of Graduate Studies regulations. Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master’s or professional degree from U-M/non-Rackham departments and programs (including Dearborn and Flint).

Degree Requirements

The Master of Science in Program and Project Management requires a minimum of 30 graduate credit hours.

Minimum Grade Requirement in addition to maintaining a minimum cumulative GPA of 3.0 or higher every semester:
1. Courses in which grades of C- or below are earned cannot be used to fulfill degree requirements.
2. No more than two courses in which grades of B- or below are earned can be used to fulfill degree requirements.

A minimum of a 3.0 cumulative GPA or higher is required at the time of graduation.

Specific Course Requirements

The program of study must satisfy the following distribution and course requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 517</td>
<td>Managing Global Programs</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5205</td>
<td>Eng Risk-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5215</td>
<td>Program Budget, Cost Est &amp; Con</td>
<td>3</td>
</tr>
<tr>
<td>EMTG 590</td>
<td>Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td>OB 510</td>
<td>Organization Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 30

Additional elective courses from other units in UM-Dearborn could also be considered with advisor’s approval.

Thesis option may be elected with the approval of the graduate advisor which will count for six (6) credit hours of graduate coursework replacing capstone project (EMTG 590) and three (3) credit hours of elective coursework. Students electing a thesis option must elect at least one more graduate level cognate course in the place of EMTG 590 for a minimum of three credit hours from departments other than IMSE to satisfy.

This certificate provides practical knowledge in program and project management fundamentals. Topics include planning and organizing resources so that programs and projects are completed on schedule, on budget, and produce high-quality outcomes. The certificate is ideal for professionals who want to enhance their capabilities in managing complex projects and achieving cost-effective results. (12 credit hours)

**Admission Requirements:** Students who apply to this certificate program should have completed an undergraduate B.S. degree in Engineering, Business, Economics, Math, Computer Science or another physical science from an accredited institution and have at least two years of practical work experience. A probability & statistics course is a prerequisite for this certification program.

### Required Core Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 515</td>
<td>Fundamentals of Program Mgt</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Coursework

Complete 2 courses from the following (6 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMSE 517</td>
<td>Managing Global Programs</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5205</td>
<td>Eng Risk-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5215</td>
<td>Program Budget, Cost Est &amp; Con</td>
<td>3</td>
</tr>
</tbody>
</table>

### Software Engineering

Students pursuing the MS degree in Software Engineering must meet the general requirements of the Rackham School of Graduate Studies. Additional requirements for the program are described below.

This degree program is available both on campus and via the Internet.

### Admission

In addition to meeting the Rackham requirements for admission, applicants for the MS in Software Engineering are required to meet the following requirements:

1. A bachelor’s degree from an accredited institution with a grade point average of B or better. An applicant with a lower GPA may be granted conditional or probationary admission consistent with Rackham guidelines. Preference will be given to applicants with backgrounds in computing, engineering, mathematics, or science.
2. Satisfactory completion of the following:
   a. General Prerequisites:
      - Calculus (1 year)
      - Linear Algebra (1 course)
   b. Software Engineering Prerequisites:
      - Probability and Statistics, (1 course)
      - Programming Language, (preferably C/C++ or Visual Basic)
      - Computer Architecture
Computer Networks
Databases
Operating Systems

Note: Students may be admitted provisionally to make up deficiencies in items 2a or 2b. The software engineering prerequisites may be completed after admission into the program on a "conditional lack of preparation" basis or substituted by two or more years of full-time professional experience in sizeable software development projects. The program committee will determine any decision on substitutions. The applicant will be required to complete the appropriate courses within two years from the date of entrance. Prerequisite courses will not earn credit towards the MS – Software Engineering degree.

3. Three letters of recommendation, with at least one from a person familiar with the candidate's academic performance, are required. Copies of the applicant's undergraduate transcripts and degree must be submitted.

Degree Requirements

The MS degree in Software Engineering is a 30-credit hour graduate program. Students admitted to the program are required to complete the approved graduate courses with an average of 8 (5/9) or better. The program of study consists of core courses, elective concentrations, a thesis/project requirement (part of which may be satisfied by additional coursework), and electives.

Advanced Standing

Up to six graduate credit hours (grade of B or better) may be transferred from another accredited institution as specified in the Rackham School of Graduate Studies regulations. Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master's or professional degree from U-M/non-Rackham departments and programs (including Dearborn and Flint).

Specific Course Requirements

The 30 semester hours of required coursework are distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Courses</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Application Courses</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Project/Theisis Option</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project/Theisis Option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Choose three courses from one of the following application areas: 9

Web Engineering:
- CIS 525 Web Technology
- CIS 534 Semantic Web
- CIS 536 Information Retrieval
- CIS 559 Prin of Social Netwk Science
- CIS 562 Web Information Management
- CIS 571 Web Services
- CIS 577 S/W User Interface Dsgn&Analys
- CIS 580 Data Analytics in Software Eng

Game Engineering:
- CIS 515 Computer Graphics
- CIS 552 Inf Vis & Multimedia Gaming
- CIS 577 S/W User Interface Dsgn&Analys
- CIS 579 Artificial Intelligence
- CIS 580 Data Analytics in Software Eng
- CIS 587 Computer Game Design and Impl
- CIS 588 Computer Game Design II
- ECE 5251 MM Design Tools I
- ECE 5252 MM Design Tools II

Data Engineering and Analytics:
- CIS 556 Database Systems
- CIS 5570 Introduction to Big Data
- CIS 562 Web Information Management
- CIS 568/ ECE 537 Data Mining
- CIS 579 Artificial Intelligence
- CIS 5700 Advanced Data Mining
- CIS 580 Data Analytics in Software Eng
- CIS 585 Adv AI
- CIS 586 Advanced Data Management
- ECE 525 Multimedia Data Stor & Retr

Information and Knowledge Engineering:
- CIS 5570 Introduction to Big Data
- CIS 559 Prin of Social Netwk Science
- CIS 568/ ECE 537 Data Mining
- CIS 579 Artificial Intelligence
- CIS 580 Data Analytics in Software Eng
- CIS 585 Adv AI
- ECE 5251 MM Design Tools I
- ECE 531 Intelligent Vehicle Systems
- ECE 552 Fuzzy Systems
- ECE 576 Information Engineering
- ECE 577 Engineering in Virtual World
- ECE 579 Intelligent Systems
- ECE 583 Artificial Neural Networks
- ECE 588 Robot Vision

Mobile and Cloud Computing:
- CIS 535 Wireless Tech/Pervasive Cmptg
- CIS 537 Advanced Netwrkng & Dist Syst
Required Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 554</td>
<td>Embedded Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Coursework

Complete 3 courses from the following (9 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 505</td>
<td>Algorithm Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIS 565</td>
<td>Software Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>CIS 575</td>
<td>Software Engineering Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>CIS 577</td>
<td>S/W User Interface Dsgn&amp;Analys</td>
<td>3</td>
</tr>
<tr>
<td>CIS 580</td>
<td>Data Analytics in Software Eng</td>
<td>3</td>
</tr>
<tr>
<td>ECE 537</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>ECE 552</td>
<td>Fuzzy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 574</td>
<td>Adv Sftwr Technq in Eng Appl</td>
<td>3</td>
</tr>
<tr>
<td>ECE 576</td>
<td>Information Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 5831</td>
<td>Pat Rec &amp; Neural Networks</td>
<td>3</td>
</tr>
</tbody>
</table>

**Systems Engineering**

The Systems Engineering program is designed for engineers and other professionals who are responsible for defining, planning, managing and supporting large integrated systems. The program consists of four graduate core courses and one graduate elective course.

The value of acquiring a systems engineering certificate includes:

- Formal recognition of the participant’s systems engineering capabilities
- Career advancement assistance
- A portable systems engineering designation that is recognizable across industries
- Professional development as a systems engineer, in addition to demonstrating a commitment to personal development
- The Systems Engineering certificate program also provides students with a strong foundation to pursue Project Management Professional® (PMP®) certification and/or the International Council on Systems Engineering (INCOSE) multi-level professional certification program.

(15 credit hours)

Certificate available on Campus and via Distance Learning

**Admission Requirements:** An undergraduate degree in engineering, business, a physical science, computer science, or applied mathematics, with a GPA of 3.0 or higher. A probability & statistics course is a prerequisite for this certification program.

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMGT 505</td>
<td>Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 501</td>
<td>Human Factors &amp; Ergonomics</td>
<td>3</td>
</tr>
</tbody>
</table>
Additional Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete 1 elective course from the following (3 credit hours):</td>
<td></td>
</tr>
<tr>
<td>AENG 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>AENG 598</td>
<td>Energy Sys for Auto Vehicles</td>
<td>3</td>
</tr>
<tr>
<td>CIS 553</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EMT 580</td>
<td>Mgt of Prod and Proc Design</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 516</td>
<td>Project Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 546</td>
<td>Safety Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 5655</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>IMSE 567</td>
<td>Reliability Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Vehicle Electronics and Controls

The increasing use of electrical systems and electronic sensors and devices in vehicles and automobiles has resulted in new developments in this field for vehicle application. With rapid progress in battery technology, it is envisaged that electric vehicles will become more affordable and more efficient. Electric drive control requires the use of power devices which are primarily high power electronic devices. Modern vehicles will rely on both analog and digital hardware for efficient operation of the vehicle. Engineers would be required to be well versed in the design of hybrid electrical and electronic systems.

The Vehicle Electronics certificate will introduce the participants to analog and digital electronics. Starting with simple diodes and rectifiers, students will be introduced to other solid state devices that are used in electronic circuits. Participants will learn the design of amplifiers, switches and other commonly used circuits. They will also receive instruction on digital logic and the use of microprocessors. Besides featuring hands-on laboratory practice, participants will be involved in several group design projects. (12 credit hours)

Certificate offered on Campus and via Distance Learning

Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 510</td>
<td>Vehicle Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>AENG 545</td>
<td>Vehicle Ergonomics I</td>
<td>3</td>
</tr>
<tr>
<td>EEC 505</td>
<td>Intro to Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>EEC 515</td>
<td>Vehicle Electronics II</td>
<td>3</td>
</tr>
<tr>
<td>EEC 519</td>
<td>Adv Topics in EMC</td>
<td>3</td>
</tr>
<tr>
<td>EEC 531</td>
<td>Intelligent Vehicle Systems</td>
<td>3</td>
</tr>
<tr>
<td>EEC 532</td>
<td>Auto Sensors and Actuators</td>
<td>3</td>
</tr>
<tr>
<td>EEC 5462</td>
<td>Elec Aspects of Hybrid Vehicle</td>
<td>3</td>
</tr>
<tr>
<td>EEC 533</td>
<td>Active Automotive Safety Sys</td>
<td>3</td>
</tr>
</tbody>
</table>

Accounting (ACC)

ACC 505  Devel & Interp Financial Info   3 Credit Hours
Students learn how financial information is developed, interpreted and utilized in business. This is accomplished by studying financial accounting tools and estimation methods used for interpretation and managers' decisions relating to investing, financing, and operating activities. Topics include financial information development and analysis, accounting estimation techniques, and cash flow analysis. Financial accounting methodology with respect to the sales and receivables cycle, inventory, property, plant and equipment, liabilities, corporate equity and initial public offerings, and investments in other corporate entities are studied. Cases requiring critical analysis and interpretation may be integrated throughout the course.

Restriction(s):
Can enroll if Class is Graduate

ACC 514  Financial Reporting      3 Credit Hours
This course covers detailed financial statements, the theoretical foundations behind those statements and how the various transactions are reported on those statements. These transactions include financing through various ownership and debt instruments, off-balance-sheet financing and leverage; investing in tangible and intangible operating assets; investing in financial instruments for return and risk management purposes; and investing in financial instruments to influence or control operations of other business units. Specifically, the course will review the accounting process and examine in detail the Income Statement, Balance Sheet and Statement of Cash flows including a study of the basics of revenue recognition, a detailed study of accounting for inventory, accounting for the life cycle of capital investments in non-current assets, various debt topics such as short term loans and payroll, as well as how companies account for long term debt and equity changes. These operating, financing and investing issues will be considered based on today's international business environment. (OC)

Prerequisite(s): ACC 505 or ACC 298

Restriction(s):
Can enroll if Level is Rackham or Graduate

ACC 516  Advanced Accounting      3 Credit Hours
To study selected advanced accounting topics which may include partnerships, business combinations, consolidated financial statements, multinational accounting and reporting, accounting for financial distress situations and regulation of accounting by the SEC. Students will not receive credit for both ACC 416 and ACC 516.

Prerequisite(s): ACC 357 or ACC 514

Restriction(s):
Can enroll if Program is MSA-Accounting

ACC 520  Comm for Acct and Tax Prof      3 Credit Hours
The ability to communicate effectively is an important skill for the tax professional. This course develops this important skill in tax compliance and tax planning settings through a series of case studies. Emphasis will be placed on effectively communicating technical aspects of the tax law to management, clients, and other professional tax situations. Students cannot receive credit for both ACC 630 and ACC 520.

Prerequisite(s): ACC 360

Restriction(s):
Can enroll if Class is Graduate

Courses A-Z
ACC 539  Not-for-Profit Accounting  3 Credit Hours
To study the principles and procedures of accounting for not-for-profit entities. Topics may include: state and local government financial accounting, financial accounting for selected other entities, managerial concepts and current issues. Student will not receive credit for both ACC 439 and ACC 539.
Prerequisite(s): ACC 356 or ACC 514
Restriction(s):
Can enroll if Program is MSA-Accounting

ACC 555  Cost Management  3 Credit Hours
To introduce how cost and managerial accounting concepts and techniques can be applied to fully utilize information created by contemporary accounting information systems. The theoretical and empirical nature of cost management reports, their structures and contents, are emphasized with the goal of highlighting the relevance and limitations of this information in decision making. The course gives consideration to global and individual responsibility center performance by covering such topics as product costing, control standards, cost allocation, pricing, quality, short-term and long-term budgeting, and performance evaluation. In addition, the reciprocal roles of accounting and technology in enhancing efficiency and effectiveness benchmarks are investigated. Interwoven into course coverage are ethical, diversity, critical thinking, and global dimensions of business. This course also integrates emerging issues and techniques to assist managers and consultants in the accounting, finance, marketing, and human resources arenas.
Prerequisite(s): ACC 505
Restriction(s):
Can enroll if Class is Graduate

ACC 557  Auditing  3 Credit Hours
To study generally accepted auditing standards, internal control, principal audit objectives, the structure of audit programs, audit procedures, professional legal liability, ethical standards, statistical sampling techniques, the audit of EDP systems, auditors report and management letters. (OC)
Prerequisite(s): ACC 505 or ACC 298
Restriction(s):
Can enroll if Level is Rackham or Graduate

ACC 560  Intro Federal Income Taxation  3 Credit Hours
Full Title: Introduction to Federal Income Taxation Survey analysis of the basic framework utilized in measuring and reporting taxable income of individuals and business entities including gross income, deductions, tax rates, credits, timing issues and procedural matters. (OC)
Prerequisite(s): ACC 505 or ACC 298
Restriction(s):
Can enroll if Level is Rackham or Graduate

ACC 580  Accounting Information Systems  3 Credit Hours
Accounting uses techniques to take raw data and convert it into information that is useful to managers and investors. But is it possible to convert data into information without knowing what it relates to, where and how it was gathered and what its limitations are? We will address these questions as we study accounting information systems. To begin, we focus on how data for typical business processes is captured and processed in a computerized accounting system using relational databases. We'll then learn how to describe an organization's accounting-related processes in a professionally rigorous way via documentation using tools used in the profession. We'll finish by learning how to analyze accounting processes to find control weaknesses in them that might allow them to generate unreliable data that could compromise the assets or liabilities of the firm or the decisions made by accountants, the managers they support or investors. (OC)
Prerequisite(s): ACC 505 or ACC 298
Restriction(s):
Can enroll if Level is Graduate or Rackham

ACC 600  Financial Accounting Theory  3 Credit Hours
This course provides an overview of 1) various approaches to accounting theory formulation (including traditional, regulatory, events, behavioral, information processing, predictive, and positive approaches), and 2) alternative asset valuation and income determination models (including historical cost, replacement cost, net realizable value, and present value models, along with the impacts of price level adjustments). Particular attention is directed at how these various approaches impact the state of the art of Accounting and how they influence the future evolution of Accounting. Additionally, the course provides for exploration and critical examination of the evolution and present state of the Financial Accounting Standards Board conceptual framework. The nature of the topics covered will enhance understanding of current and developing generally accepted accounting principles.
Prerequisite(s): ACC 356
Restriction(s):
Can enroll if Class is Graduate

ACC 601  Information Tech Auditing  3 Credit Hours
With the increased capabilities of IT have come new risks for firms and or their auditors. Audit firms are finding that they can no longer audit `around the computer?. This requires CPAs to understand the types of risk arising in IT-based systems and consider their impact on a clients? business and the audit. This course introduces you to these types of risk, the implications these risks have for the traditional audit and the other services public accountants provide to address IT-based risks. IT is also a powerful tool that accountants and auditors must know how to harness. Students will become proficient in applying commonly used electronic audit tools to conduct computer-assisted audit techniques (CAATs).
Prerequisite(s): ACC 457 or MIS 525
Restriction(s):
Can enroll if Class is Graduate

ACC 602  Contemporary Accounting Issues  3 Credit Hours
This course provides in-depth exposure to emerging contemporary issues in accounting. Topics in the seminar change to reflect the most relevant professional issues. The issues chosen are designed to be not only timely but to also provide insight into emerging future areas of the profession. In addition to lecture material and readings, the lecturer may incorporate case material, research papers, and other teaching methods as appropriate.
Prerequisite(s): ACC 600 and ACC 601
ACC 603  Controllership  3 Credit Hours
The nature of the control function in business corporations is the focus of this course. Thus, classes cover the characteristics of management planning and control in functional and divisional organizations, responsibility accounting and the role of efficiency and effectiveness in performance measurement. Coverage also extends to controllers’ roles in strategic planning, programming, and budgeting, transfer pricing, and their behavioral, global, ethical, and technological dimensions. Class presentations employ case analysis and emphasize the qualitative nature of controllership.
Prerequisite(s): ACC 355 or ACC 555
Restriction(s):
Can enroll if Class is Graduate

ACC 604  Auditing & Forensic Examination  3 Credit Hours
To study forensic examination and investigation techniques including typical embezzlement and financial statement fraud scenarios, fraud risk factors, sources and uses of evidence, and interrogation and surveillance techniques. Other course topics may include auditing standards for private and public companies, expanding assurance services, advanced internal control testing, audit objectives and procedures, ethical standards, sampling techniques, auditor’s report, risk based auditing, and management letters. Special attention will be given to the changing role and services offered by internal and external auditors, auditor responsibility to the public, and the ability of the auditor to offer assurance. Prerequisites: Graduate standing.
Prerequisite(s): ACC 457 or ACC 557

ACC 605  International Accounting  3 Credit Hours
To study selected topics in international accounting and taxation. The course will examine accounting principles and practices of the major world economies and consider issues typically encountered by U.S. corporations in accounting for and reporting the financial activities of foreign operations. Students will explore taxation of international operations and tax planning for the U.S. based multinational corporation.
Prerequisite(s): ACC 408 or ACC 356 or ACC 357 or ACC 358

ACC 608  Financial Statement Analysis  3 Credit Hours
The objective of financial statement analysis is to examine the relationship between financial statement information and the measurement of firm value. The analysis merges actual firm value created by economic process and estimating firm value through accounting reporting methods. Students will develop tools to interpret financial statement information for use by investors, creditors, and other third party stakeholders. Topics include, but are not limited to, an overview of financial statements, basic financial analysis, profitability analysis and the quality of earnings, cash flow analysis, asset analysis, liability analysis, and valuation and equity analysis.
Prerequisite(s): ACC 505 and (FIN 531* or FIN 401*)
Restriction(s):
Can enroll if Class is Graduate

ACC 614  Advanced Accounting II  3 Credit Hours
This course is intended to help students gain expertise in preparing financial statements for complex business organizations. Specific topics include: The preparation of segmental and consolidated financial statements. Intricate accounting issues associated with business combinations including but not limited to combinations at the date of acquisition and periods post acquisition. Analysis of inter-company transactions such as inventory and asset transfers between parent and subsidiary. Reporting for segments of a business as well as interim reporting. Reporting foreign exchange issues including inter-period reporting and financial statement translation. Analysis of firm issues related to SEC reporting, re-organization, bankruptcy and troubled debt restructuring. Understanding of issues associated with fair-value reporting. International reporting issues associated with all of the above, as well as other, topics. (OC)
Prerequisite(s): ACC 416 or ACC 516
Restriction(s):
Can enroll if Level is Rackham or Graduate

ACC 616  Corp Acts & Reacts & Firm Val  3 Credit Hours
This course will analyze various decisions made by the firm relating to its operations as well as environmental impacts on its operations. This analysis will focus on the interpretation or translation of these decisions and environmental impacts by the two main providers of estimates of the firm’s economic value, its own financial statements and the stock market. The primary objective of this course is to illustrate how quickly, or slowly, firm decisions and environmental impacts are impounded into these estimates of firm value. Additionally, the need for both stock market participants and the accounting process to estimate the value of these events before all uncertainty concerning their actual economic impact of firm value can be known will be illustrated. Open only to MBA and dual MBA students.
Prerequisite(s): ACC 505 and FIN 531 and (DS 520 or IMSE 514)
Restriction(s):
Can enroll if Program is MBA-Business Administration, MBA/MHSA-Management & HSA Dual, MBA/MSF-Management & Fin Dual, MBA/ISE-Management & ISE Dual, MBA-Business Admin (Web), MBA/MSIS-Mgmt & Info Sys Dual

ACC 657  Adv Auditing & Assurance Serv  3 Credit Hours
Full Title: Advanced Auditing and Assurance Services Introduces students to advanced audit and assurance service practices, strategies, and techniques. Topics include audit strategy, fraud, internal and operation audits, auditor liability, issues in audit information technologies, and audit practice. (OC)
Prerequisite(s): ACC 457 or ACC 557
Restriction(s):

ACC 660  Advanced Federal Income Tax  3 Credit Hours
Full Title: Advanced Federal Income Taxation Survey analysis of federal tax law relating to the formation, operation, and liquidation of corporations, partnerships, and LLCs, including current distributions; and the election, operation, and termination of Subchapter S corporations. (OC)
Prerequisite(s): ACC 560 or ACC 360
Restriction(s):
Can enroll if Level is Graduate or Rackham

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
African & African-American Studies

AAAS 503  Minority Groups  3 Credit Hours
The status of racial and ethnic minorities in the United States with particular reference to the social dynamics involved with regard to majority-minority relations. Topics of study include inequality, segregation, pluralism, the nature and causes of prejudice and discrimination, and the impact that such patterns have upon American life. Additional reading assignments or projects will distinguish this course from its undergraduate version AAAS 403. Students cannot receive credit for both AAAS 403 and AAAS 503. (AY)

Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

AAAS 504  Dissed: Differ, Power, Discrim  3 Credit Hours
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power - social, economic, and political - in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a 'natural order', obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors, and ideologies that maintain discrimination and the unequal distribution of power and resources. Students will not receive credit for both AAAS 404 and AAAS 504. This course is distinguished from its 400-level counterpart by the requirement of additional assignments, including a required additional paper.

Restriction(s):
Can enroll if Class is Graduate

AAAS 5401  Seminar: African Diaspora  3 Credit Hours
Research seminar on the history of the African Diaspora in the Atlantic World. This course covers examples of classic texts in the field, as well as significant new scholarship, with an emphasis on critical reading, analysis, and the development of an independent research project. Students gain a deeper understanding of the significance of the African Diaspora in the New World, derived from lectures and discussions providing an overview of this subject, as well as the micro views gleaned from sharing classroom presentation about students' individual research topics. The graduate version of this course includes weightier readings and assignments, with a research paper for potential publication.

Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if Level is Graduate or Rackham

AAAS 569  Contemp African American Lit  3 Credit Hours
An intensive study of major 20th century African American writers. Fiction, poetry, autobiography, and drama will be examined, but one genre will be stressed in any given term, e.g., the novel. Lectures will provide historical and biographical context for analysis and discussion on the works. (OC)

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) or ENGL 231 and (ENGL 200 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Can enroll if Class is Graduate

AAAS 577  African American English  3 Credit Hours
An examination of the structure, history and use of African-American English. Topics will include the pronunciation, grammar and vocabulary of African-American English, theories of origin, linguistic repertoire and code-switching in African-American communities, the Ebonics controversy, and the role of this variety in education and identity formation. Additional reading assignments or projects will distinguish this course from its undergraduate version. Students cannot receive credit for both AAAS 477 and AAAS 577.

Prerequisite(s): LING 280 or LING 281 or LING 480 or LING 580
Restriction(s):
Can enroll if Class is Graduate

AAAS 591  Topics in African Diaspora  3 Credit Hours
This course deals with African Diasporan history from the 19th century to the present. The method is by definition cross-cultural and comparative, requiring that the works or figures under study represent a diversity of Diasporan nationalities and/or cultures. The course may focus on a wide range of topics. Students cannot receive credit for AAAS 491 and 591 when the topic title is the same.

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(AY) alternating years; (AY) offered occasionally

Anthropology (ANTH)

ANTH 506  Culture and Sexuality  3 Credit Hours
The study of women, men, children, socialization practices, and the genesis of sex roles cross-culturally. Additionally, reading assignments or projects will distinguish this course from its undergraduate version. ANTH 406. Students cannot receive credit for both ANTH 406 and ANTH 506. ANTH 101 recommended. (YR).

Restriction(s):
Can enroll if Class is Graduate

ANTH 507  Sexual Praxis and Theory  3 Credit Hours
This course will offer an overview of sexual differences including: the socio-cultural construction of gender, sexual behavior, and orientation; sex and sexualities in language and literature; and diversity by race, class, and cultural heritage. (F).

Prerequisite(s): WST 275 or WGST 275 or HUM 275 or SOC 275 or ANTH 275 or SOC 443 or PSYC 275 or PSYC 405 or ANTH 406 or ANTH 101 or ANTH 506 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

ANTH 509  Human Body, Growth and Health  3 Credit Hours
Can enroll if Class is Graduate
ANTH 515  Nutrition and Health  3 Credit Hours
The influence of nutrition on physical and mental development from conception to adulthood. Topics include: 1) definition and function of the essential nutrients for people, 2) basic principles of human growth and development, 3) the causes and consequences of under- and over-nutrition, 4) feeding practices for infants and children and the development of food habits, 5) nutrient and food problems in the local region and in global perspective. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 415. Students cannot receive credit for both ANTH 415 and ANTH 515. (YR).
Restriction(s):
Can enroll if Class is Graduate

ANTH 520  Kinship and Marriage  3 Credit Hours
A study of the diversity of kinship and marriage systems, and of the history of kinship theory which has played a seminal role in the development of general anthropological theory. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 420. Students cannot receive credit for both ANTH 420 and ANTH 520. (OC).
Prerequisite(s): ANTH 101 or ANTH 201
Restriction(s):
Can enroll if Level is Graduate or Rackham

ANTH 521  Education and Culture  3 Credit Hours
How and where do people learn? Why are there schools, and how is schooling culturally organized? Why do school trends tend to vary by "race", social class, and gender? What insights does anthropology bring to practical problems of learning and teaching? Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 421. Students cannot receive credit for both ANTH 421 and ANTH 521. (AY).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ANTH 525  Language and Society  3 Credit Hours
An examination of the social functions of speech through readings and exercises, emphasizing schools and other applied settings. Topics include ethnic and social class dialects, codeswitching, and the organization of conversation. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 425. Students cannot receive credit for both ANTH 425 and ANTH 525. (OC).
Restriction(s):
Can enroll if Level is Rackham or Graduate

ANTH 530  Health, Culture and Medicine  3 Credit Hours
A comprehensive examination of how culture mediates processes of illness and healing. Comparative materials worldwide are examined and provide a context for an anthropological analysis of modern biomedicine. Special attention is given to psychosocial illnesses, culture-bound syndromes, and the role of meaning in sickness and curing. Admission to the Master of Science in Health Psychology Program or permission of instructor. (W).
Restriction(s):
Can enroll if Class is Graduate

ANTH 555  Immigrant Cultures and Gender  3 Credit Hours
The history and culture of immigration since 1850, including: 1) formation and perseverance of immigrant communities and interethnic boundaries; 2) relations between the homeland and the immigrant; and 3) impact of migration on family life and gender roles. Additional reading assignments or project will distinguish this course from its undergraduate version ANTH 455. Students cannot receive credit for both ANTH 455 and ANTH 555. ANTH 101 recommended. (OC).
Restriction(s):
Can enroll if Class is Graduate

ANTH 560  Economic Anthropology  3 Credit Hours
A comparative examination of the basis of political economy. Economic problems (the production and distribution of goods and services) will be considered in ecological, evolutionary, and political terms. The primary emphasis will be on traditional economies, on production and exchange at the household level, and on the effect of modern market systems on indigenous cultures. (OC).
Restriction(s):
Can enroll if Class is Graduate

ANTH 570  Doing Anthropology  3 Credit Hours
A practicum of anthropological theory and method, including ethnographic interviews and participant observation. Students will conduct field research and evaluate results with the help of classmates. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 470. Students cannot receive credit for both ANTH 470 and ANTH 570. (YR).
Prerequisite(s): ANTH 101
Restriction(s):
Can enroll if Level is Graduate or Rackham

ANTH 577  Ethnographic Film  3 Credit Hours
This course will analyze ethnographic films as a medium for the construction of meaning in and across cultures. It will teach students to understand how the putatively "real" content of documentary film creates a mixture of fantasy, news and "science." Covering texts as varied as National Geographic photographic layouts, traditional ethnographic films made by anthropologists, and auto-ethnographies of cultural groups such as Native Americans and the Trobriand Islanders of Papua New Guinea, the course will aim to deconstruct such oppositions as indigene vs. alien, us vs. them, and self vs. other. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 477. Students cannot receive credit for both ANTH 477 and ANTH 577. (AY).
Prerequisite(s): FILM 248 or HUM 248 or ANTH 101 or ENGL 248 or JASS 248
Restriction(s):
Can enroll if Level is Graduate or Rackham

ANTH 581  Gender and Globalization  3 Credit Hours
Mass media, politics, and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women's lives, gender relations, and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism, and environmental challenges. Rather than survey international women's movements, this course explores how globalization reformulates identities and locations and the political possibilities they create. Students cannot receive credit for both ANTH 481 and ANTH 581. (AY).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters
**ANTH 582**  Psychological Anthropology  3 Credit Hours  
Cross-cultural comparison of theories of human nature, including psychoanalytic anthropology, culture-and-personality, and other theories from Western science, as well as non-Western theories about such concepts as the person, emotions, and mental illness. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 482. Students cannot receive credit for both ANTH 482 and ANTH 582. ANTH 101 and PSYC 170 or 171 highly recommended. (YR).

**Restriction(s):**  
Can enroll if Class is Graduate

**ANTH 590**  Topics in Anthropology  1 to 3 Credit Hours  
Examination of problems and issues in selected areas of anthropology. Title in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs. (OC).

**ANTH 598**  Independent Study  1 to 6 Credit Hours  
Readings or analytical assignments in Anthropology in accordance with the needs and interests of those enrolled and agreed upon by the student and instructor. (F, W,S).

**Restriction(s):**  
Can enroll if Class is Graduate

**ANTH 599**  Readings in Anthropology  1 to 3 Credit Hours  
For students desiring study not available in the regular course offerings. Additional reading assignments or projects will distinguish this course from its undergraduate version ANTH 499. Students cannot receive credit for both ANTH 499 and ANTH 599. (F, W, S).

**Restriction(s):**  
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:  
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Arab American Studies (AAST)**

**AAST 5676**  Arab Americans Since 1890  3 Credit Hours  
This course traces immigration from Syria, Lebanon and Palestine (Bilad al Sham) to the U.S. from the 1890s to the present. We begin by utilizing theories on immigration and ethnicity in order to understand patterns of settlement, work, and leisure, and examine the Arab Americans? religious life, press, and evaluate their membership in unions and political parties. Participants will gain knowledge of the immigrants? past achievements and more recent scholarship on their development in public and private spheres. The course includes activities in local institutions, researching archival material, and contact with community leaders. This course will provide knowledge of the historical roots of the Arab Americans? adjustment to life as U.S. citizens and will prepare the students for further inquiry. Graduate Students can expect to evaluate archival manuscript collections, lead class discussions and could engage original research.

**Restriction(s):**  
Can enroll if Class is Graduate

**AAST 5677**  Arab American Identity  3 Credit Hours  
Extensive discussions and critical analysis of the main markers of Arab American identity formation from late nineteenth century to present. This seminar provides in-depth assessments of immigrant narratives from various sources and disciplinary approaches on specific racial, ethnic, and gender experiences within the larger U.S. context. Additional assignments distinguish the graduate version of this course from the undergraduate version.

**Prerequisite(s):** HIST 300  
**Restriction(s):**  
Can enroll if Class is Graduate

**AAST 5678**  Middle Eastern Diasporas  3 Credit Hours  
This course explores the diasporas of Arabs, Turks, Assyrians, and Iranians living in Europe and the Americas that have occurred since the 1880s. It pays careful attention to how "aspects of diaspora" shape, mimic, transect, and undermine the political and economic regimes of which they are part. The reception of Middle Eastern communities in different national contexts and historical periods receive special attention as do their adaptive strategies as religious, ethnic, gendered, and racialized minorities. Those enrolled in the graduate level of the course pursue additional readings and assignments.

**Restriction(s):**  
Can enroll if Class is Graduate

**AAST 573**  Arab American Women Writers  3 Credit Hours  
Examines the literary and cultural contributions of Arab and Arab American women novelists, poets, and artists to the development and consolidation of the cultures of understanding and coexistence; explores the tensions between citizenship and belonging, race and the politics of fear, gender and geographical mobility, and ethnic minorities and mainstream consciousness; discerns how Arab women writers and artists retool their various artistic endeavors to channel socio-political disenchantment, critique and civil disobedience; stresses how literary and artistic productions of heterogeneous number of Arab American women writers and artists can indeed foster alternative visions of socio-cultural coexistence, dialogue, and hospitality via artistic commitments to technical and stylistic experimentation and renovation.

**AAST 590**  Topics in Arab Amer Studies  3 Credit Hours  
The content of this course will vary. All courses which will run under this number will cover Arab American issues. (OC)

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:  
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Art History (ARTH)**

**ARTH 516**  Earl Mod Jpn Paint&Wood Prnts  3 Credit Hours  
Paintings and woodblock prints of the Edo/Tokugawa (1600-1868) and Meiji (1868-1912) periods are considered in light of competing developments that on the one hand looked to Japan's classical tradition and on the other to the influence of arts and artists from China and the West. Special attention is given to female artists and images of women. (AY).

**Prerequisite(s):** ARTH 101 or ARTH 102 or ARTH 103  
**Restriction(s):**  
Can enroll if Class is Graduate
ARTH 525  Women in Classical Antiquity  3 Credit Hours
This course examines the evidence for the lives of women in Greek, Etruscan, and Roman Antiquity, from the Bronze Age through the Imperial Period. Special emphasis will be placed on the archaeological evidence, especially works of art which illustrate women's lives and their relationships with men. Documents such as dedicatory and funerary inscriptions, the poetry of Sappho and Sulpicia, and selections from the writings of Homer, Hesiod, Aristotle, Pliny, Juvenal, and other ancient authors, will also be examined critically, particularly in relationship to the works of art. (AY)
Prerequisite(s): ARTH 101
Restriction(s):
Can enroll if Class is Graduate

ARTH 526  City of Ancient Rome  3 Credit Hours
This course will focus on the ancient city of Rome, from its foundation to its precipitous decline in the fifth century AD. It will explore the public art and architecture of the city, emphasizing the different types of evidence available (topography, architecture, sculpture, texts) for understanding the history, politics, religion, and urban development of Rome as well as the various historical and archaeological techniques used to analyze the evidence. Students cannot receive credit for both ARTH 426 and 526.
(OC)
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or LIBS 560
Restriction(s):
Can enroll if Class is Graduate

ARTH 528  Roman Art and Memory  3 Credit Hours
In this course, we examine Roman art closely associated with personal commemoration and cultural memory, including portraiture, funerary monuments, imperial monuments, and public architecture. We explore these objects? relationship to Roman literary culture?s theories of mnemotechnics, and in the social context of the Roman obsession with memory perpetuation. We also examine how art historians apply modern theories of collective and social memory in their scholarship on Roman art, creating new ways of understanding Roman sculpture, painting, and architecture. Finally, we investigate Roman spectacle and performance as a vehicle of cultural memory. Graduate students enrolled in this seminar will be exposed in greater depth to the theoretical and historiographical scholarship of cultural and collective memory, as well as to current topics in Roman art. Graduate students are responsible for additional reading assignments and more lengthy and substantial oral presentations and final papers, as outlined below. Students cannot earn credit for both ARTH 428 and 528.
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106
Restriction(s):
Can enroll if Class is Graduate

ARTH 554  Rembrandt  3 Credit Hours
Rembrandt's paintings, drawings, and prints are considered in the full historical and cultural context of the Golden Age of the Northern Netherlands, a period of unprecedented wealth and cultural diversity. Special attention will be given to issues of style, iconography, biography, art criticism, gender, and artistic technique. (AY).
Prerequisite(s): ARTH 101 or ARTH 102 or ARTH 103
Restriction(s):
Can enroll if Class is Graduate

ARTH 569  Collage, Montage, Assemblage  3 Credit Hours
Different conceptions of collage, montage, and assemblage have vitally shaped artistic practice in the twentieth century, perhaps even more so than the advent of modernist abstraction. The modern phenomenon of collecting, mixing, and sampling that permeates the last century up to and including the contemporary moment will be traced in the class across the thresholds of painting, sculpture, architecture, photography, and film. We will discuss a wide range of movements, genres, and styles (Cubism, Futurism, Surrealism, Dada, Weimar and Russian photomontage, Soviet film, found footage film, French decollage, postwar assemblage) and their relation to the ever-changing mass media, the urban, and the modernized ? in short, the everyday. The last segment of the class addressed more recent interpretations of the collage paradigm, including installation art and digital applications. Student cannot receive credit for both ARTH 469 and ARTH 569.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Automotive Engineering (AENG)

AENG 500  Automobile: An Integrated Syst  3 Credit Hours
Factors external to engineering such as markets, financing, and sales; the customers and their perceptions as influenced by marketing and performance; volume markets; international. An abc of engineering factors in all the components and sub-systems areas and in the plant, labor, and supplies area. Vehicle characteristics and dynamic interactions.
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if College is Engineering and Computer Science

AENG 502  Modeling of Automotive Systems  3 Credit Hours
This course will first introduce systems modeling approach and then develop mathematical models for ride, vibration, handling control, etc. of automobiles. The models will then be used to examine the design and performance of an automobile from a systems point of view. (F, YR).
Prerequisite(s): ME 265 or ME 345
Restriction(s):
Can enroll if Class is Graduate

AENG 505  Digital Systems & Microprocess  3 Credit Hours
Introduction to modern digital computer logic. Numbers and coding systems; Boolean algebra with applications to logic systems; combinational and sequential logic design; examples of digital logic circuits; simple machine language programming; microprocessors-programming, input/output, interrupts, and system design. (Not open to students with EE degree.)
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if College is Engineering and Computer Science
AENG 510  Vehicle Electronics I  3 Credit Hours
Semiconductor diodes, junction transistors, FETS, rectifiers and power supplies, small signal amplifiers, biasing considerations, gain-bandwidth limitations, circuits models, automotive applications and case studies. (Not open to students with EE degree.)
Prerequisite(s): ECE 305
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if College is Engineering and Computer Science

AENG 534  Fundamentals of Thermal/Fluid Sci  3 Credit Hours
Thermodynamics with emphasis on first and second laws; gas mixtures; introduction to cycles. Kinetics and dynamics of fluid flow; conservation laws of momentum and energy; flow and friction in conduits. Mechanism of heat transfer; introduction to convection and radiative heat transfer. (Not open to students with ME degree.)
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if College is Engineering and Computer Science

AENG 541  Intro to Automotive Dynamics  3 Credit Hours
An introduction to dynamics and vibrations. Overview of dynamics and vibration of automotive components and suspension systems. Automotive maneuvering and vehicle response. (Not open to students with ME degree.)
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if College is Engineering and Computer Science

AENG 545  Vehicle Ergonomics I  3 Credit Hours
Prerequisite(s): IMSE 442
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if College is Engineering and Computer Science

AENG 546  Vehicle Ergonomics II  3 Credit Hours
This course covers advanced human factors engineering and ergonomics topics related to incorporation and integration of new display, information, lighting and sensor technologies to improve driver convenience, performance, safety, and to reduce driver distractions. The students will learn new evaluation methodologies, driver performance models, and use research equipment to measure driver performance, and evaluate usability issues. Some advanced topics to be covered include: driver workload, evaluation and design of new in-vehicle devices, advanced vehicle lighting, and driver vision systems, models to predict and evaluate field of view, target detection, disability and discomfort glare, legibility, etc. Three lecture hours including laboratory projects and demonstrations. Prerequisite: Graduate standing. (W).
Prerequisite(s): AENG 545
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham

AENG 547  Automotive Powertrains I  3 Credit Hours
Topics in kinematics and dynamics including engine output and balance; mechanisms and machine theory. Force analysis and design of gears and shaft systems. Analysis of planetary gear trains. Design and analysis of automotive gear boxes.
Prerequisite(s): ME 265
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if College is Engineering and Computer Science

AENG 550  Design of Automotive Chassis  3 Credit Hours
This course provides a systems approach to the design of automotive chassis and body components and examines the influence of their design on the overall structural performance of the automobile. Design issues related to structural rigidity, ride comfort, safety and crash-worthiness, durability and assembly are covered. Applications of advanced materials and joining techniques are discussed. Analytical tools used in automotive structural design are also discussed.
Restriction(s):
Can enroll if Class is Graduate

AENG 551  FEM in Auto Structure Design  3 Credit Hours
This course is designed to introduce the applications of finite element method in automotive structure design. It includes specific design examples of vehicle NVH and durability with commercial pre-processor and FEA solver. The course also provides theoretical knowledge of FEA and vehicle design.
Prerequisite(s): ME 345 and ME 3601
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

AENG 554  Vehicle Electronics II  3 Credit Hours
Automotive maneuvering and vehicle response. (Not open to students with ME degree.)

AENG 555  Vehicle Stability & Control  3 Credit Hours
Introduction to static and dynamic stability characteristics of vehicles. Study on directional vehicle responses and stability in small disturbance maneuver. Design, numerical simulation, and analysis of vehicle control systems (ABS, active suspension, and yaw stability). Prerequisite: Dynamics (ME 345), Control Systems Design and Analysis (ME 442) or equivalent.
Prerequisite(s): ME 345 and ME 442
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Mechanical Engineering, Electrical Engineering, Automotive Systems Engineering

AENG 556  Vehicle Thermal Management  3 Credit Hours
This course covers fundamental thermo-fluid principles and advanced topics in thermal management of conventional and electric drive vehicles (EDVs). The topics include: principles of energy conservation, heat transfer, and fluid mechanics; vehicle thermal management system and components; electrification of vehicle thermal management system; EDV thermal management; battery thermal management in EDVs; and waste energy recovery.
Restriction(s):
Can enroll if Class is Graduate or Doctorate
Can enroll if College is Engineering and Computer Science
AENG 581  Materials Sel in Auto Design  3 Credit Hours
This course develops an understanding of the properties of modern engineering materials and explains the role of the materials selection process in product design, development, and manufacturing. Materials selection/design problems and case studies involving automotive and other commercial products are discussed. The role of environmental regulations, societal pressures and customer wants on the selection of alternate materials is discussed. (YR)
Restriction(s):
Can enroll if Class is Graduate

AENG 582  Materials I  3 Credit Hours
Mechanical behavior of engineering materials such as metals, ceramics, glasses, polymers, and composites. In the metals area, emphasis will be on phase diagrams, transformations, light alloys, carbon steels, alloy steels, and forming and joining of metals.
Restriction(s):
Can enroll if Level is Rackham or Graduate

AENG 583  Project Mgmt and Concurren Eng  3 Credit Hours
Project management emphasis including project scope management, time management, cost management, quality management, human resource management, etc. Concurrent engineering and project leadership. Applications to automotive projects using Superproject computer package.
Prerequisite(s): IMSE 317
Restriction(s):
Can enroll if Level is Rackham or Graduate

AENG 584  Lightweight Automotive Alloys  3 Credit Hours
This course introduces structure-processing-property relationships in the lightweight automotive alloys that are candidates for automotive applications such as aluminum, titanium, and magnesium. Metal matrix composite and intermetallic materials are also discussed. Emphasis will be placed on the processing and design of these materials in future automotive applications. (YR).
Restriction(s):
Can enroll if Class is Graduate

AENG 585  Ceramics for Auto Applications  3 Credit Hours
This course will present physical, thermal and mechanical properties of structural ceramics, ceramic coatings and ceramic matrix composites. Design and processing issues for these materials are emphasized. Automotive applications of ceramics are discussed. Thermoelectric and other propulsion materials are also discussed. (YR).
Restriction(s):
Can enroll if Class is Graduate

AENG 586  Design & Mfg: Ltwt Auto Mat  3 Credit Hours
This course will address the design issues and manufacturing considerations for various lightweight automotive structural materials. Design issues will include stiffness, fatigue, vibrations, dent resistance, crush resistance, etc. Methods of producing lightweight automotive structures are discussed. Design for manufacturing, assembly, disassembly and recycling are emphasized. (YR).
Prerequisite(s): AENG 581 and AENG 587

AENG 587  Automotive Manuf Processes  3 Credit Hours
Manufacturing processes, including casting, forging, forming, machining, molding, etc., are examined specifically in the context of their applications in the automotive industry. Quality control and techniques, process selection and methods are emphasized.
Restriction(s):
Can enroll if Level is Doctorate or Graduate or Rackham

AENG 588  Design & Manuf for Environment  3 Credit Hours
This is a course focused on the effects of product design and manufacturing on the environment, with special emphasis on automobiles. The fundamental principles of life cycle engineering will be introduced. The importance of environmental improvement will be considered. Design and material selection for recycling, reuse and disposal will be illustrated. Furthermore, it will cover the elementary relationships between design and manufacturing for the development of future environmentally friendly vehicles.
Restriction(s):
Can enroll if Class is Graduate

AENG 589  Auto Assembly Systems  3 Credit Hours
This course deals with in-depth analysis of automotive assembly systems. Design, analysis and economics of manual and automatic assembly of automotive components are to be emphasized. It includes design of assembly stations for manual assembly; automatic assembly stations; design for assembly and disassembly; analysis of automatic feeding and orientation techniques of small parts; assembly of large parts; application of robotics in assembly; and economics of assembly for automotive systems as well as electronic systems.
Restriction(s):
Can enroll if Class is Graduate

AENG 590  Selected Topics  1 to 3 Credit Hours
Individual or group study of an automotive systems engineering topic of contemporary interest.
Restriction(s):
Can enroll if Level is Graduate

AENG 591  Guided Study in Automotive Sys  1 to 3 Credit Hours
Individual or group study of an automotive systems engineering topic of contemporary interest.
Restriction(s):
Can enroll if Class is Graduate

AENG 596  Internal Combustion Engines I  3 Credit Hours
Comparison of several forms of internal combustion engines including Otto and diesel-type piston engines; performance parameters and testing; thermodynamic cycles and fuel-air cycles; combustion in SI and Diesel engines; charge formation and handling; ignition; elements of exhaust emissions. (Not available to students with ME 496 or equivalent background.)
Prerequisite(s): ME 330
Restriction(s):
Can enroll if Level is Rackham or Graduate or Doctorate
Can enroll if College is Engineering and Computer Science
AENG 598 Energy Sys for Auto Vehicles  3 Credit Hours
This course will discuss the current and future energy systems for automotive vehicles. Topics include liquid and gaseous fuels, direct energy conversion systems and fuel cells. Characteristics of various energy systems are discussed with respect to their performance, cost, reliability and environmental concerns. Fuel cell analysis and design is covered in detail. (W, AY).
Prerequisite(s): ME 496 or AENG 596
Restriction(s):
Can enroll if Class is Graduate

AENG 650 Anyls&Des for Veh Crshwrthnss  3 Credit Hours
This course aims to provide knowledge on vehicle crash mechanics, structural design to improve crashworthiness and crash energy management. Finite element techniques for vehicle crash analysis are also covered.
Prerequisite(s): ME 510 or AENG 551
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate or Doctorate
Can enroll if College is Engineering and Computer Science

AENG 687 Adv Auto Mfg Processes  3 Credit Hours
This course deals with in-depth analysis of select manufacturing processes used for the fabrication and assembly of automotive vehicles. Modeling and simulation of selected classes of manufacturing processes using numerical methods; such as finite difference and finite element methods, will be studied. Process optimization approaches will be introduced and applied to selected processes.
Prerequisite(s): AENG 587
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham or Graduate

AENG 698 Capstone Proj(Case Stud/Dsn)  3 to 6 Credit Hours
Individual or team design or case study of interest to the students. Topics may be chosen from any of the areas of automotive engineering. The student (or the team) will submit a project report and give an oral presentation at the end of the second term. The project spans two terms. (Permission of advisor required before registration.)
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Automotive Systems Engineering

AENG 699 Master's Thesis  3 to 6 Credit Hours
Research for master's thesis under the direction of a faculty member. (Permission of advisor required.)
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Automotive Systems Engineering

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Automotive Systems Engineering (ASE)

ASE 798 Doctoral Seminar  0 Credit Hours
After attaining candidacy every Ph.D. student is required to attend and actively participate in seminars each semester until graduation. In addition, each Ph.D. student is required to present a one hour seminar about his/her research or an a pre assigned research topic, and lead a follow-up discussion on the future trends in his/her field.
Corequisite(s): ASE 990
Restriction(s):
Can enroll if Class is Doctorate
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Automotive Systems Engineering

ASE 990 Doctoral Dissertation  1 to 9 Credit Hours
Dissertation work by a Ph.D. student who has been admitted to the candidacy status. The student must be registered during the semester of the dissertation defense. (1 to 9 credit hours per semester)
Restriction(s):
Can enroll if Class is Doctorate
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Automotive Systems Engineering

Bioengineering (BENG)

BENG 520 Adv Molecular and Cell Biology  3 Credit Hours
This course introduces the cell and molecular biology concepts from an engineering perspective and provides the foundation for modern biotechnology and bioengineering. This course is designed for a first year engineering graduate student to develop a comprehensive understanding of relevant applications in biology, including biochemical, cellular organizational, metabolic and genetics aspects. Advanced concepts including genomics, molecular biology, recombinant DNA technology and evolution are discussed. The course provides exposure to several key techniques used in biological engineering laboratories. Students will have chance to present and discuss individual application through team project. (YR)
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

BENG 521 Biomats and Biochem Interface  3 Credit Hours
The course will provide graduate-level foundation on biomaterials science and principles. Specifically, the course will involve discussion on the importance of surfaces and interfaces in biomaterial function and elements controlling host responses to materials, introduction to biomimetic and rational designing approaches, and develop critical analyses of biomaterials through reading research papers and developing projects. (YR)
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate
BENG 526 Fundamentals of Drug Delivery 3 Credit Hours
This course is designed to provide students with an understanding on the concepts in drug delivery from an engineering perspective. The course will cover drug delivery mechanisms, quantitative understanding of drug transport, nanotechnology, drug delivery devices, toxicity and immune response, FDA regulations, clinical trials and technology transfer. The course will conclude with a design project on nanoparticles development for targeted drug delivery. (YR)
Restriction(s):
- Can enroll if Level is Doctorate or Graduate or Rackham

BENG 550 Biomedical Optics and Biophotonics 3 Credit Hours
The recent explosion of interest in minimally invasive medical diagnostics has been fueled in part by the development of novel optics and photonics techniques and instrumentation designed specifically for medical applications. A large number of optically-based imaging and sensing diagnostics are now in use in both the research laboratory and medical clinic. Topics include engineering design principles of optical instrumentation for medical diagnostics, elastic and inelastic light scattering theory and biomedical applications, confocal and multiphoton microscopy, light propagation and optical tomographic imaging in biological tissues, and design of minimally invasive spectroscopic diagnostics. (YR)
Restriction(s):
- Can enroll if Level is Rackham or Doctorate or Graduate

BENG 551 Microfluidics 3 Credit Hours
Microscaled systems and devices have enhanced reaction rates, predictable fluidic mechanics, reduced reagent volumes, and also lowered cost of manufacturing. These advantages benefit many biomedical applications that require sensitive molecular detection in robust and economical devices. In this course, a range of microsystem techniques will be discussed, including those based on Microfluidics, BioMEMS, and Optofluidics. The lectures will meet twice a week, one hour each, and will be accompanied by student-driven design projects that will be conducted in 3-hour laboratories. (YR)
Restriction(s):
- Can enroll if Level is Doctorate or Graduate or Rackham

BENG 560 Nanobiosystems Engineering 3 Credit Hours
Nanobiosystems Engineering is an emerging frontier in nanotechnology. It integrates materials science, bioengineering, physics and life science with the biological and biochemical applications. This fast-developing interdisciplinary field holds the promise to solve many of the medical problems of future. The course will introduce advanced concepts related to nanomaterials and nanofabrication and their application in medicine. The course will also focus on design and development of nano-devices for the applications of pharmaceuticals and healthcare. Typical applications including nano-biosensor, targeted drug delivery, and tissue engineering will also be discussed. Students in Bioengineering will have chance to present and discuss individual application through team project. (YR)
Restriction(s):
- Can enroll if Level is Rackham or Doctorate or Graduate

BENG 571 Impact Biomechanics 3 Credit Hours
This course focuses on the understanding of the behavior of human organs, bone and tissue at their point of mechanical or functional failure. Topics will include research methods in injury biomechanics, injury tolerance of the structures and materials of the head, brain, spine, thorax, abdomen and extremities and injury prevention focusing on safety equipment. Federal motor vehicle safety standards will be discussed. (YR)
Restriction(s):
- Can enroll if Level is Doctorate or Rackham or Doctorate

BENG 575 Regenerative Engineering 3 Credit Hours
This course will discuss principles of tissue engineering whereby the properties of stem as well as primary cells, growth factors, and extracellular matrix and their impact in the development of engineered tissue constructs will be explored. In addition, the course will also focus on supporting/enabling technologies typically utilized in engineering these constructs including nano-and micro-fabrication techniques, 3D printing, micro-patterning as well designing principles of bioreactors, and drug and gene delivery techniques. Additionally, various tissue engineering applications will be discussed including synthetic tissues and organs that are currently under development for regenerative medicine application. (YR)
Restriction(s):
- Can enroll if Level is Doctorate or Rackham or Doctorate

BENG 595 Digital Manufacturing 3 Credit Hours
This combined lecture and hands on project course aims to train students to optimize the interplay of materials, people, machines and profitability. The course introduces methods to identify product concepts with commercial potential. Student teams will perform market analysis and explore the intellectual property space around their ideas and rapidly iterate them into a final prototype via direct digital manufacturing (e.g., 3D CAD/CAM files manifested via digital printing or machining). Advanced instruction on direct digital manufacturing tools will be given, and customer response will be used as feedback. Early stage prototypes will progress into more sophisticated designs, scaling up (cost, pricing, tooling, process flow and automation) scenario planning for mass manufacturing as well as Failure Mode Effect Analysis (FMEA) will be discussed. (W,YR)
Restriction(s):
- Can enroll if Level is Doctorate or Graduate or Rackham
- Can enroll if College is Engineering and Computer Science

BENG 600 Study or Research in Bioengineering 1 to 3 Credit Hours
Individual study or research in an area of bioengineering under supervision of a faculty member. The student will submit a written report at the close of the term. (YR)
Restriction(s):
- Can enroll if Level is Graduate or Rackham or Doctorate

BENG 699 Master's Thesis 1 to 6 Credit Hours
Research project in the area of bioengineering conducted under supervision of a program faculty member. While guided by a faculty member, a student electing this course is expected to carry out the work him-or herself. Successful completion of the course requires completion and public defense of a written thesis. A student must satisfactorily complete all 6 credit hours, which can be distributed over multiple semesters. (YR)
Restriction(s):
- Can enroll if Level is Rackham or Graduate

* An asterisk denotes that a course may be taken concurrently.
Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Biological Science (BIOL)

BIOL 501  Discoveries in Current Biology  3 Credit Hours
Current issues in biology based on an inquiry approach to learning with a primary emphasis on laboratory, field observations, and discussion. Students will help to develop the specific topics within the subject areas that include the environment, heredity, and health. Projects will have direct applications for classroom teaching. Lecture and laboratory. Permission of College of Education, Health, and Human Services advisor. Teacher experience. (S).

BIOL 508  Invasive Species Ecology  3 Credit Hours
This course will examine the biological, ecological and societal impacts of invasive species. Major issues including characteristics of invasive species, invaded communities, origins and success rates of invaders, economic and health effects, methodologies and regulatory strategies for dealing with invasive species will be discussed. Students will investigate an invasive species and make oral and written reports.
Prerequisite(s): BIOL 304 and BIOL 320

BIOL 514  Applied Ecology  3 Credit Hours
An advanced treatment of the principles of ecology especially as they relate to environmental problems and environmental management. This course is intended for graduate students and for undergraduate fulfillment of the biology capstone requirement. Students should have earned a C or above in Ecology (BIOL/ESCI 304) or equivalent.
Prerequisite(s): BIOL 304 or ESCI 304
Restriction(s):
Can enroll if Class is Graduate
Cannot enroll if Level is Professional Development or Undergraduate

BIOL 515  Aquatic Ecosystems  4 Credit Hours
Advanced course based on the comparative study of the structure and function of lakes, wetlands and rivers. The physical, geological, chemical and biological characteristics of natural and disturbed ecosystems will be emphasized. (F, AY).
Prerequisite(s): BIOL 130 and CHEM 124 and GEOL 118
Restriction(s):
Can enroll if Class is Graduate

BIOL 516  Limnology  3 Credit Hours
The study of the structural and functional relationships and productivity of organisms in lakes and streams as they are regulated by their physical, chemical and biotic environments. BIOL/ESCI 304 or ESCI 275 required. Not open to undergraduates or students who have taken BIOL/ESCI 414.
Prerequisite(s): BIOL 304 or ESCI 301 or ESCI 304 or ESCI 275
Restriction(s):
Can enroll if Level is Graduate or Rackham

BIOL 517  Wetland Biology  3 Credit Hours
An in depth examination of wetlands from functional, habitat and management perspectives. Topics include hydrology, soils, biogeochemical cycling, biological adaptations, major wetland types, regulation, restoration and creation. Two all-day Saturday field trips required.
Prerequisite(s): BIOL 304 or ESCI 304
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Senior or Graduate

BIOL 519  Behavior and Evolution  3 Credit Hours
An in depth examination of how evolutionary processes shape behavior, focusing on the influence of natural, sexual, and kin selection. Topics include behavioral genetics, natural selection, sexual selection, kin selection, optimality, game theory, evolutionary stable strategies, phylogenetics, and the comparative method. Additional assignments will distinguish this course from the undergraduate version.
Restriction(s):
Can enroll if Class is Graduate

BIOL 522  Conservation Biology  3 Credit Hours
This course is a study of the historical and current preservation of global biodiversity. The value of biodiversity, extinction, threats to biodiversity, and both ex situ and in situ conservation strategies are considered. A student may not receive credit for both BIOL/ESCI 422 and BIOL 522. (W, AY)
Restriction(s):
Can enroll if Class is Graduate

BIOL 524  Biology of Spiders  4 Credit Hours
An introduction to the biology of spiders and related arachnids. Lectures include spider anatomy, natural history, ecology, and evolution. Laboratory work includes specimen preparation, use of dichotomous keys, spider behavior, field methods, rearing and collecting techniques, and identification of spiders and their webs. Three hours lecture, four hours laboratory. Students cannot receive credit for both Biology 424 and Biology 524.
Prerequisite(s): BIOL 130
Restriction(s):
Can enroll if Class is Graduate

BIOL 545  Restoration Ecology  3 Credit Hours
Restoration Ecology is an interdisciplinary course that develops theories and practices that help rehabilitate impaired ecosystems towards a sustainable state. Bioremedial and phytoremediation are some approaches to be discussed. Short-term site management is discussed, often including continued resource or recreational use, with the eventual site sustainability in mind. (F, AY)
Prerequisite(s): BIOL 304 or ESCI 304
Restriction(s):
Can enroll if Class is Graduate

BIOL 552  Med & Env Toxicology  3 Credit Hours
Emphasis will be on cellular and human pathophysiology resulting from environmental toxicants. Examples will be based on toxicant exposure and subsequent diseases in humans and other biological systems. (AY).
Prerequisite(s): BIOL 140 and CHEM 225 or (BIOL 301 or BIOL 303 or BIOL 385 or BIOL 370 or BIOL 455 or BIOL 470)
Restriction(s):
Can enroll if Class is Graduate

BIOL 556  Behavioral Biology  4 Credit Hours
This course uses evolutionary and ecological theory to evaluate behavioral adaptations of organisms to their environment. Topics discussed include game theory, kin selection, sexual selection, eusociality, orientation and navigation, and signal evolution. Laboratory sessions include: observations of animal behavior, required manipulations of live animals, and field trips. Three hours of lecture, one four-hour laboratory.
Corequisite(s):
Restriction(s):
Cannot enroll if Class is Undergraduate NCFD or Undergraduate NCFD or Freshman or Sophomore or Junior or Senior
BIOL 561 Advances in Cell Biology 2 Credit Hours
Normal and environmentally changing circumstances regulate genes and proteins affecting many important cellular processes. This course will link recent discoveries in cell biology to organisms and the environment that the cell inhabits. Lectures will discuss the roles of organelle and membrane structure and function, gene regulation, metabolism, immunology, and cellular pathology. (OC).
Prerequisite(s): BIOL 140 and CHEM 225 and (BIOL 301 or BIOL 303 or BIOL 304 or BIOL 306 or BIOL 307 or BIOL 309 or BIOL 310 or BIOL 311 or BIOL 312 or BIOL 313 or BIOL 315 or BIOL 320 or BIOL 326 or BIOL 333 or BIOL 335 or BIOL 350 or BIOL 351 or BIOL 360 or BIOL 361 or BIOL 370 or BIOL 380 or BIOL 385 or BIOL 390 or BIOL 405 or BIOL 406 or BIOL 414 or BIOL 416 or BIOL 420 or BIOL 440 or BIOL 445 or BIOL 459 or BIOL 470 or BIOL 471 or BIOL 472 or BIOL 473 or BIOL 474 or BIOL 485 or BIOL 489 or BIOL 490 or BIOL 495 or BIOL 497 or BIOL 498 or BIOL 499 or BIOL 501 or BIOL 514 or BIOL 515 or BIOL 545 or BIOL 552 or BIOL 590)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if Level is Graduate or Rackham

BIOL 590 Topics in Biology 1 to 4 Credit Hours
Current topics in Biology. One to four credit hours. (OC)
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Business Administration (BA)

BA 605 Mgrl Dec Making 3 Credit Hours
This course covers the findings of research on behavioral decision making as they apply to managerial decision making. You will learn how the human mind works, what it is particularly good at and not so good at, and what the implications of this are for managerial decision making. The course will help you make better decisions and understand the potential shortcomings of the decisions made by your colleagues, competitors, collaborators, and customers. Topics include human cognition, overconfidence, heuristics and biases in decision making, bounded awareness, framing, preference reversal, motivational and emotional influences on decision making, escalation of commitment, expertise in decision making, and fairness and ethics in decision making. We will apply the research on behavioral decision making to a wide variety of problems in various domains of business, study how applications of information systems can mitigate limitations of the human mind, and apply our knowledge of the way the human mind works to develop an understanding of ways to improve managerial decision making. Students interested in careers in a wide variety of business professions will find the knowledge and skills gained in this course to be useful in their professional endeavors.
Prerequisite(s): BE 530 and MIS 525 and OB 510 and (DS 520 or IMSE 510 or IMSE 514)

BA 690 Graduate Research 1 to 3 Credit Hours
To provide masters candidates with the opportunity to undertake a research project under the supervision of a faculty member. The research topic is chosen by the student, in consultation with a faculty member in the appropriate discipline. Written approval must be obtained at least two weeks prior to registration on a form available in the Graduate Office. The request must include a comprehensive description of the proposed research project, as well as a time line for the project’s completion.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Business

BA 691 Graduate Seminar 1 to 3 Credit Hours
Topics Course. To provide masters candidates with an opportunity for study of selected advanced topics in particular fields. Topics vary. See Schedule of Classes for current offerings. May be elected more than once if topics differ.
Restriction(s):
Can enroll if Class is Graduate

BA 691A Graduate Seminar 3 Credit Hours
Topic: The Internal Revenue Service. This course introduces the student to the structure, organization, practices and procedures of the Internal Revenue Service. The course is intended to give students an understanding of the organizational makeup of the Internal Revenue Service and the authority of its various employees. The different approaches to resolving tax controversies will be explored through the study of assigned readings and in-depth class discussions. The course will be conducted in a seminar-like fashion with each student expected to make significant contributions to class discussions. Attention to news items affecting the area of federal tax procedures is expected, as well as conveyance to class of these newsworthy developments. This course is appropriate for MSA? Tax Concentration students.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Business Economics (BE)

BE 530 Econ Analysis: Firm & Consumer 3 Credit Hours
This is a microeconomics course with a managerial emphasis designed for graduate students. Microeconomics is a branch of economics that studies the behavior of individual consumers, producers, and industries. This course emphasizes business applications of economic theories. Among the topics covered are supply and demand, production functions, cost minimization, profit maximization, competitive markets, monopoly and monopolistic competition, oligopoly, decision making in uncertain situations, and asymmetric information. The mathematics admission prerequisite must be satisfied prior to electing BE 530.
Prerequisite(s): MATH 104 or MATH 105 or MATH 113 or MATH 115 Restriction(s):
Can enroll if Class is Graduate
BE 580 Econ Analysis: Nat'l & Int'l 3 Credit Hours
This is a macroeconomics course designed for graduate management students. Macroeconomics is a branch of economics that studies the performance of entire economies. Accordingly, this course develops an understanding of both the domestic economic situation and the importance of global interactions. Topics include analysis of the levels of aggregate output, employment and prices, the roles of aggregate supply and aggregate demand, monetary and fiscal systems and policies; and the impacts of international trade and financial flows.
Prerequisite(s): BE 530
Restriction(s):
Can enroll if Class is Graduate

BE 583 Global Econ: Crisis & Growth 3 Credit Hours
This AIM course develops the understanding of the global economy and financial system necessary for business leaders. Understanding of the fundamentals of macroeconomic systems is developed in the first half of the course including both domestic and international perspectives. In the second half of the course these fundamentals are expanded and shown how they apply to contemporary global events. The financial instruments which played an important role in these global economic events are understood both in terms of their construction and their effects. By seeing how the tools apply to the modern international economic system, students will gain an ability of how to apply the tools of macroeconomics and finance to the international events of the future. No credit for both BE 580 and BE 583.
Prerequisite(s): BE 530 and (DS 520 or IMSE 510 or IMSE 514) and FIN 531
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Business Internship (BI)

BI 500 Business Internship 3 Credit Hours
The internship provides full-time paid experience for students in a professional business environment. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and evaluation documents at the end of each work assignment and participate in an assessment session with the internship staff. (A maximum of 3 credit hours of internship course work from BI 500, BI 505 or BI 560 may be applied toward graduation requirements upon approval from the Program Advisor.)
Restriction(s):
Can enroll if Class is Graduate

BI 505 Part-Time Business Internship 1 Credit Hour
The internship provides part-time paid and unpaid experience for students in a professional business environment. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and evaluation documents at the end of each work assignment and participate in an assessment session with the internship staff. This course may be repeated a maximum of three times (A maximum of 3 credit hours of internship course work from BI 500, BI 505 or BI 560 may be applied toward graduation requirements upon approval from the Program Advisor.)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Degree is Master of Science, Master of Science in Finance, Master of Business Admin

BI 560 International Business Intern 1 to 3 Credit Hours
This internship allows flexibility to engage in applied practical work experience outside of the United States, through paid or unpaid and full or part time work experiences. Participating organizations hire students within parameters set by the Internship Program. Students are required to maintain contact with the Internship Office throughout their experience. Students are required to submit reports, evaluation documents and participate in an assessment session with the internship staff. Students are responsible for their own legal, housing and transportation issues. This course will satisfy non-resident academic credit, which may be applied to elective credit for the student’s degree requirements. (A maximum of 3 credit hours of internship course work from BI 500, BI 505, or BI 560 may be applied toward graduation requirements upon approval from the Program Advisor.)
Restriction(s):
Can enroll if Level is Graduate
Can enroll if College is Business

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Business Policy and Strategy (BPS)

BPS 516 Corporate Social Responsib 3 Credit Hours
The focus of this writing intensive interdisciplinary course will be on covering the perspectives that form the context for business: the pressure from changing ethical and global issues; the influence of political, social, legal and regulatory, environmental, and technological issues; and the impact of diversity on the organization. These issues will be addressed from the viewpoint of the various stakeholder groups that impact a business including shareholders, employees, customers, community (including the global community), and the natural environment.
Restriction(s):
Can enroll if Class is Graduate
**BPS 535 Strategic Plan and Dec Making** 3 Credit Hours
To study management of the business in relationship to its external environment. Emphasis is on strategic analysis, strategy formulation, and strategy implementation. Topics include: the strategic management process; developing a strategic vision; setting objectives; company, industry, and competitive analysis; strategic analysis and competitive advantage; crafting strategy at the functional, business, corporate, and international levels; designing the organizational structure; and designing operational policies and procedures, and reward systems.

**Prerequisite(s):** ACC 505 and FIN 531 and MKT 515 and OB 510 and (EMGT 520 or IMSE 580 or OM 521)

**Restriction(s):**
Can enroll if Class is Graduate

**BPS 585 Managing Strat Innov & Change** 3 Credit Hours
This course examines how even well-designed, highly capable organizations fail to deal with the challenges of technological and industry changes if they do not pursue strategies that fit the moving competitive landscape. Emphasis is placed on developing a systematic understanding of the challenges involved in weaving together organizational components to create an organization that is capable of enacting successful competitive strategies, for nurturing, sustaining and exploiting innovation. The course will offer in-depth coverage of changes that ought to be made in various functional areas, marketing, finance, human resources etc., by building up and building on consistent capabilities of the company, while adapting to and exploiting competitive openings that new technologies may provide.

**Prerequisite(s):** ACC 505 and OB 510 and MKT 515 and FIN 531

**Restriction(s):**
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Communication (COMM)**

**COMM 520 Critical Media Studies** 3 Credit Hours
Course presents various critical approaches to the study of the media. Perspectives include political economy, cultural studies, critical theory of the Frankfurt school and feminism. Through readings and first hand analysis of the media students will delve deeply into the institutional underpinnings, content, use and reception of media. There will be special emphasis on how broader economic, cultural and technological changes influence our experience of media in everyday life as creators, citizens, audiences and consumers.

**Restriction(s):**
Can enroll if Class is Graduate

**COMM 530 International Communication** 3 Credit Hours
Course examines the relationship between globalization and communication from various vantage points such as cultural imperialism, global media flows, and hybridity theory. Students use these theoretical approaches to understand how people in particular locations experience, adapt, resist and modify globally circulating aspects of media, popular culture, news and information. Through critical responses to readings, class exercises, individual and team projects, students also explore how global pressures and changes influence the way people understand and project their identities, buy and sell communication as a commodity, negotiate borders, and create social change.

**Restriction(s):**
Can enroll if Class is Graduate

**COMM 550 Prin of Organizational Comm** 3 Credit Hours
Course examines how communication networks function in organizations. Purpose: to provide an organizational context and conceptual framework for the practice of professional writing and speaking skills. Writing projects include a research report, a case study, and shorter papers (practical and analytical) on assigned topics. Areas of focus include persuasion, decision-making, conflict resolution, problem solving, and the role of communication in leadership, motivation, small group activity, organizational change, and job satisfaction. (AY)

**Prerequisite(s):** COMM 340 or COMM 440

**Restriction(s):**
Can enroll if Class is Graduate
COMM 555  Gender and Media Studies  3 Credit Hours
The course will focus on several feminist approaches used in understanding the media and attempting to create social change through the media. The role of media in the definition and reproduction of gender-based hierarchies and in the renegotiation of gender boundaries will both be explored. To this end, both mainstream and women’s media will be examined. The course will take a multicultural and international perspective, incorporating concerns of class, race, ethnicity, and nation as these intersect with the study of gender and media. Mainstream and alternative media will be analyzed through readings, films, case studies, in-class collaborative exercises and longer term projects. News, entertainment, and advertising genres will be examined in a variety of media, such as the printed press, television, video, film, and the Internet.
Prerequisite(s): WGST 275 or WGST 303
Restriction(s):
Can enroll if Class is Graduate

COMM 564  Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners in related developments in linguistics, philosophy, and psychology. (OC)
Prerequisite(s): COMM 201 or COMM 220 or COMM 290 or ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250
Restriction(s):
Can enroll if Class is Graduate

COMM 570  Adv Technical and Prof Comm  3 Credit Hours
Review and practice of advanced professional communication skills, especially audience analysis, assessment of organizational contexts and field-specific conventions, document design, varieties of formal and informal report writing, proposal writing, abstracting, editing, and documentation. Students will study specialized formats and communication issues specific to their professional needs, and will develop their abilities to present technical and complex information to a variety of audiences, both general and specialized, in a variety of professional contexts. Appropriate for graduate students in professional degree programs, such as engineering, management, public administration, and education. Undergraduates must have permission of instructor.

COMM 577  Professional Comm Ethics  3 Credit Hours
An examination of professional communication in the organizational context, focusing on important issues, problems, and concepts. This course is designed to help students become conscious of the role of values in a wide range of professional communication situations; to locate organizational behavior in an ethical framework based on considered definitions, standards, perspectives, and criteria for evaluation and analysis; to consider individuals as well as organizations as moral agents in a changing and complex universe; and to analyze topical cases on emergent issues in communication ethics. (YR)
Prerequisite(s): COMM 340 or COMM 440 or COMM 450
Restriction(s):
Can enroll if Class is Graduate

COMM 581  Gender and Globalization  3 Credit Hours
Mass media, politics, and academia are full of references to globalization, and a future “world without borders.” This interdisciplinary course considers the implication of globalization for women’s lives, gender relations, and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism, and environmental challenges. Rather than survey international women’s movements, this course explores how globalization reformulates identities and locations and the political possibilities they create. Students cannot receive credit for both COMM 481 and COMM 581. (AY)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters

COMM 590  Topics in Communication  1 to 3 Credit Hours
Examination of problems and issues in selected areas of Communications. Titles listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs. Only offered for graduate credit. (OC)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally

Comparative Literature (COML)

COML 533  Writing Women in Renaissance  3 Credit Hours
This course will be taught in English, and will focus on the influence of Italian literary models for the construction of female literary types as well as female voices in France and Italy from 1300 to about 1600. Italian authors studied include three very influential Florentines, Dante, Petrarch and Boccaccio, as well as Castiglione and Ariosto. We will read women poets, patrons, prostitutes and queens from Italy and France such as Veronica Gambara, Isabella di Morra, Vittoria Colonna, Christine de Pizan, Louise Labe, and Marguerite de Navarre. At issue will be women’s roles and women’s images in city and court culture during the early modern period, and the interaction of their writings with the literary canons of Italy and France. (OC).
Restriction(s):
Can enroll if Class is Graduate

COML 555  This American Life  3 Credit Hours
The course “This American Life: Immigrant Literature and the American Dream” is a literary and cultural analysis of the literature of immigration. The readings are from works of fiction in a variety of genres, and are written by American and non-American prize-winning authors. Their common denominator is the pursuit of the American Dream and its many multifaceted aspects. The themes explored include: assimilation, acculturation, diversity, language, subculture, intertextuality, nostalgia, belonging, and double identity. This course will be distinguished from its undergraduate counterpart, COML 455, by the inclusion of additional readings and assignments.
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.
Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Computer & Computational Math (CCM)

CCM 504 Dynamical Systems 3 Credit Hours
The aim of this course is to survey the standard types of differential equations. This includes systems of differential equations, and partial differential equations, including for each type, a discussion of the basic theory, examples of applications, and classical techniques of solution with remarks about their numerical aspects. Also included are autonomous and periodic solutions, phase space, stability, perturbation techniques and Method of Liapunov. Additional reading assignments or projects will distinguish this course from its undergraduate version CCM 404. Students cannot receive credit for both CCM 404 and CCM 504. (AY)
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate

CCM 551 Computer Graphics 3 Credit Hours
Basic geometrical concepts, graphics output primitives, two dimensional transformations, windowing, and clipping, three dimensional viewing, visible surface detection methods, graphical user interfaces. Additional reading assignments or projects will distinguish this course from its undergraduate version CCM 451. Students cannot receive credit for both CCM 451 and CCM 551. (YR)
Prerequisite(s): (CCM 350 or CIS 350) and (MATH 215 or MATH 205) and MATH 217
Restriction(s):
Can enroll if Class is Graduate

CCM 558 Introduction to Wavelets 3 Credit Hours
This course will introduce the student to theory and application of wavelets using linear algebra. Topics will include the discrete Fourier transform, linear transformations, orthogonal decomposition, discrete wavelet analysis, the filter bank, Harr Wavelet family, Daubechies's Wavelet family, and applications. Additional reading assignments or projects will distinguish this course from its undergraduate version CCM 458. Students cannot receive credit for both CCM 458 and CCM 558. (OC)
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Program is MS-Applied&Computational Math

CCM 572 Intro to Numerical Analysis 3 Credit Hours
Solution of linear systems by Gaussian elimination, solution of non-linear equations by iterative methods, numerical solution of ordinary differential equations, data fitting with spline functions, numerical integration, optimization. Additional reading assignments or projects will distinguish this course from its undergraduate version CCM 472. Students cannot receive credit for both CCM 472 and CCM 572. (F)
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate

CCM 573 Matrix Computation 3 Credit Hours
A study of the most effective methods for finding the numerical solution of problems that can be expected in terms of matrices, including simultaneous linear equations, orthogonal projections and least squares, eigenvalues and eigenvectors, positive definite matrices, and difference and differential equations. Additional reading assignments or projects will distinguish this course from its undergraduate version CCM 473. Students cannot receive credit for both CCM 473 and CCM 573. (AY)
Prerequisite(s): MATH 217 or MATH 227
Restriction(s):
Can enroll if Class is Graduate
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Computer & Information Science (CIS)

CIS 505 Algorithm Analysis and Design 3 Credit Hours
This course investigates how to design efficient algorithms. Topics covered include: asymptotic analysis, average-case and worst-case analysis, recurrence analysis, amortized analysis, classical algorithms, computational complexity analysis, NP-completeness, and approximation algorithms. In addition, the course investigates approaches to algorithm design including: greedy algorithms, divide and conquer, dynamic programming, randomization, and branch and bound.
Prerequisite(s): CIS 350
Restriction(s):

CIS 510 Computer Interfacing 3 Credit Hours
This course covers fundamentals of computer interfacing to the external world through the following: parallel and serial interfaces, timers, interrupts, UART, and DUART. Programming aspects will be emphasized. Knowledge of an assembly language required. (YR).
Prerequisite(s): CIS 310

CIS 515 Computer Graphics 3 Credit Hours
Basic geometrical concepts, graphics primitives, two-dimensional transformations, segmented files, windowing and clipping, camera models, and 3-D viewing transformations. (F).
Prerequisite(s): (CIS 350 or CIS 350) or IMSE 350 and (MATH 217 or MATH 227) and (MATH 205 or MATH 215)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

CIS 525 Web Technology 3 Credit Hours
This course deals with the study of the technologies used to design and implement multimedia web sites. Topics include web servers, HTML, CGI, scripting languages, Java applets, back-end database connectivity, web security, multimedia, XML, web services, .NET, semantic web. (YR).
Prerequisite(s): CIS 553*
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science
CIS 527  Computer Networks  3 Credit Hours
To study the technical and management aspects of computer networks and distributed systems. Topics include: communication hardware, communication protocols, network architectures, local area networks, distributed database systems. Case studies and research project will be assigned for additional insight.
Prerequisite(s): CIS 450 or IMSE 450 or ECE 478

CIS 534  Semantic Web  3 Credit Hours
The aim of this course is to investigate the fundamental concepts, techniques, and technologies for enabling the envisioned semantic web. The topics to be covered include ontologies, domain modeling, logic, reasoning and inference techniques, semantic Web services, and ontology interoperability/mappings. We will review major semantic web research projects, as well as current technologies for enabling the semantic web.
Prerequisite(s): CIS 556
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate
Can enroll if College is Engineering and Computer Science

CIS 535  Wireless Tech/Pervasive Comp  3 Credit Hours
This course covers contemporary technologies for programmable mobile and wireless intelligent hand-held devices. Students will get an overview of mobile operating system concepts/techniques and will learn how to develop software for mobile/smart devices, with particular emphasis on the constraints intrinsic to such devices. Topics in location-based services and pervasive computing will also be covered. Participation in a project is a requirement in this course. This class requires knowledge in computer programming.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Graduate or Rackham

CIS 536  Information Retrieval  3 Credit Hours
This course covers techniques for locating relevant semi-structured or unstructured documents, residing in a large document repository, satisfying various information needs. Particular attention will be paid to repositories of text documents or web pages. Participation in a project is a requirement in this course.
Prerequisite(s): CIS 505
Restriction(s):
Can enroll if Level is Doctorate or Graduate or Rackham

CIS 537  Advanced Networking & Dist Syst  3 Credit Hours
This course focuses on the design, implementation, analysis, and evaluation of large-scale networked systems. Specific networking topics include congestion/flow control, traffic analysis, routing, internetworking, multicast, mobile and wireless networks, quality of service, and security. Fundamental distributed systems topics include domain name service, global routing protocols, content delivery networks, and peer-to-peer systems.
Prerequisite(s): CIS 427 or CIS 527

CIS 544  Computer and Network Security  3 Credit Hours
The course will provide a broad spectrum introduction of the fundamental principles of computer and network security. Topics will include security policies, models and mechanism for confidentiality, integrity and availability, access control, authorization, cryptography and applications, threats and vulnerabilities in computer networks, key management, firewalls and security services in computer networks.
Prerequisite(s): CIS 450 or IMSE 450 or ECE 478

CIS 545  Data Security and Privacy  3 Credit Hours
With the continuing proliferation of ways to collect and use information about people, there is a great concern whether such use of information about people affects privacy adversely. This course covers basics of data security and privacy techniques which can facilitate the use of data in a secure and privacy-sensitive way. Topics include security and privacy challenges due to big data collection and analytics, technologies and strategies for data security and privacy (access control mechanism, integrity policy, cryptography and encryption, notice and consent, anonymization or de-identification, deletion and non-retention). (F)
Restriction(s):
Can enroll if Level is Graduate or Rackham

CIS 546  Security&Privacy Wireless Ntwk  3 Credit Hours
This course focuses on security issues in wireless networks, such as cellular networks, wireless LANs, mobile ad-hoc networks, vehicular networks, sensor networks, and RFID. The course will first present an overview of wireless networks, then focus on attacks and discuss proposed solutions and their limitations.
Prerequisite(s): CIS 527 or CIS 544
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Doctorate or Rackham

CIS 548  Sec and Priv in Cloud Comp  3 Credit Hours
This course covers the major security and privacy topics in cloud computing. The goals of this course are to familiarize students with the major security and privacy issues and challenges associated with cloud computing, and to show them how to address them. Topics include outsourced storage security and privacy, outsourced computation security and privacy, secure virtualization and cloud platform security, trusted cloud computing technology, key management in the cloud, cloud forensics, cloud-related regulatory and compliance issues, and business and security risk models.
Prerequisite(s): (CIS 477 or CIS 544) and ECE 528
Restriction(s):
Can enroll if Level is Rackham or Graduate or Doctorate
Can enroll if College is Engineering and Computer Science

CIS 550  Obj-Oriet Prog and Its Applic  3 Credit Hours
This course covers advanced programming techniques using objects and classes, including programming windows, menus, toolbars, and drawing in windows. Further applications include distributed computing in which client and server communicate with each other by sending messages.
Prerequisite(s): CIS 350

CIS 551  Advanced Computer Graphics  3 Credit Hours
Prerequisite(s): CIS 515

CIS 552  Info Vis & Multimedia Gaming  3 Credit Hours
This course introduces basic techniques for digital animation, computer and video games, and web multimedia. Topics include the process of creating animated video clips from start to finish, including story creation, storyboard, modeling, animation, and post-production; several key techniques for video editing and motion generation, including keyframe, motion capture editing, collision detection, particle systems, physical simulation, and real-time rendering; techniques for web animation and multimedia; and internet gaming.
Prerequisite(s): CIS 515 or CIS 587
Restriction(s):
Can enroll if Class is Graduate or Doctorate
**CIS 553  Software Engineering  3 Credit Hours**
Program design methodologies; control flow and data flow in programs; program measurement. Software life cycle; large program design, development, testing, and maintenance. Software reliability and fault tolerance. Evolution dynamics of software. (YR).

**Prerequisite(s):** CIS 375

**CIS 554  Info Sys Analysis and Design  3 Credit Hours**
To analyze the information needs of organizations and design suitable information systems to meet their needs. Topics include: systems analysis and design techniques related to analyzing and determining information needs, feasibility studies, designing input/processing/output systems, and hardware/software development and evaluation.

**Prerequisite(s):** CIS 350

**CIS 555  Dec Support and Expert System  3 Credit Hours**
To study the application of artificial intelligence in building decision support and expert systems for management and other applications. Topics include: fundamentals of artificial intelligence, knowledge representation and knowledge processing, tools for building expert systems and decision support system design. (YR).

**Prerequisite(s):** CIS 350 or IMSE 350 or CCM 350

**CIS 556  Database Systems  3 Credit Hours**
An examination of the database approach to data management in computer systems. Topics include database fundamentals, the relational network, and hierarchical database models, normalization of data, distributed databases, and current trends and issues. (YR).

**Restriction(s):**
Can enroll if Class is Graduate or Doctorate

**CIS 5570  Introduction to Big Data  3 Credit Hours**
This course provides an overview of what big data is and explores its characteristics. It introduces the fundamental technologies, platforms, and methods that enable Big Data analysis, and covers how to acquire, store, and analyze very large amounts of information to complete Big Data analysis tasks. Students will gain hands-on experience in real-world applications of Big Data such as in cyber-physical systems and health informatics. Most of the work in this course will be team-based and task-oriented.

**Restriction(s):**
Can enroll if Level is Doctorate or Rackham or Graduate

**CIS 559  Prin of Social Netwk Science  3 Credit Hours**
This course presents an in-depth study of various types of information networks, which range from the structure and behavior of the world-wide web, to the structure and behavior of various collaboration networks, such as bibliographic citations, viral marketing, and online social networks. Using concepts from graph theory and game theory, topics include small-world networks, scale-free networks, the structure of the web, link analysis and web search, and influence networks.

**Prerequisite(s):** CIS 505

**CIS 560  Electronic Commerce  3 Credit Hours**
This course examines how new information technologies and networks affect the exchange of goods and services between buyers and sellers in firms. What are economics of different electronic commerce models for firms? The course combines critical evaluation of business strategies with hands-on experience in building supporting electronic commerce systems utilizing electronic data interchange (EDI) software. (YR).

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

**CIS 562  Web Information Management  3 Credit Hours**
This course provides an in-depth examination of advances in web information management, retrieval and applications. Topics covered include: web interfaces to databases, XML standards, web database design, web database architectures, web query languages, web data restructuring, web information integration, semantic web and ontologies, and web mining. (YR)

**Prerequisite(s):** CIS 556 or CIS 421

**Restriction(s):**
Can enroll if Class is Graduate

**CIS 563  Modeling of Computer-based Sys  3 Credit Hours**
The purpose is to expose the students to modeling and simulation concepts and methodologies to use modeling and simulation as a tool for both the analysis of systems and the development of their information systems support.

**Restriction(s):**
Can enroll if Class is Graduate

**CIS 564  Enterprise Information Systems  3 Credit Hours**
The purpose of this course is to provide a foundation for the analysis, design and implementation of enterprise information systems. Topics include systems and organization theories, and information systems planning and evaluation. Students will be also introduced to various systems development life cycle phases of an enterprise information system. Students will acquire an understanding of the flow of information (forecasts, financial, accounting and operational data) within an enterprise and the factors that should be considered in designing an integrated enterprise information system. This includes all systems in the business cycle from revenue forecasts, production planning, inventory management, logistics, manufacturing, accounts payable, sales, accounts receivable, payroll, general ledger and report generation. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 applications development software suite. (YR).

**Restriction(s):**
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

**CIS 565  Software Quality Assurance  3 Credit Hours**
This course focuses on the processes, methods, and techniques for developing quality software, and maintaining quality software. Software testing processes at the unit, module, subsystem, and systems levels are discussed. Testing methods covered include: automatic and manual generation of test data, static vs. dynamic analysis, functional testing, inspections, and reliability assessment.

**Prerequisite(s):** CIS 553

**CIS 564  Enterprise Information Systems  3 Credit Hours**
The purpose of this course is to provide a foundation for the analysis, design and implementation of enterprise information systems. Topics include systems and organization theories, and information systems planning and evaluation. Students will be also introduced to various systems development life cycle phases of an enterprise information system. Students will acquire an understanding of the flow of information (forecasts, financial, accounting and operational data) within an enterprise and the factors that should be considered in designing an integrated enterprise information system. This includes all systems in the business cycle from revenue forecasts, production planning, inventory management, logistics, manufacturing, accounts payable, sales, accounts receivable, payroll, general ledger and report generation. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 applications development software suite. (YR).

**Restriction(s):**
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

**CIS 565  Software Quality Assurance  3 Credit Hours**
This course focuses on the processes, methods, and techniques for developing quality software, and maintaining quality software. Software testing processes at the unit, module, subsystem, and systems levels are discussed. Testing methods covered include: automatic and manual generation of test data, static vs. dynamic analysis, functional testing, inspections, and reliability assessment.

**Prerequisite(s):** CIS 553
CIS 566  Software Arch and Des Patterns  3 Credit Hours
A design pattern is a catalogued solution that has been applied and
tested in multiple situations to produce well-designed reusable object-
oriented software. This course covers both architectural and software
design patterns in theory and in practice, with various applications. The
course will end with a case study and design exercise demonstrating
identification and utilization of architectural design patterns in real world
application. The students will test their understanding by completing
three projects utilizing popular design patterns and a term project
utilizing multitude of patterns. Class presentation of published advanced
patterns may be required.
Prerequisite(s): CIS 553
Restriction(s):
Can enroll if Class is Graduate or Doctorate

CIS 568  Data Mining  3 Credit Hours
Advances in computer information systems, machine learning, statistics,
and intelligent systems and methodologies for the automatic discovery
of knowledge from large high-dimensional databases. This course also
uses engineering development tools such as neural networks, fuzzy logic,
and genetic algorithms.
Prerequisite(s): ECE 479 or CIS 479

CIS 569  Wireless Sensor Networks  3 Credit Hours
This course provides students with an overview of wireless sensor
networks and the issues related to their design and implementation. It
introduces students to the state-of-the-art in wireless sensor networking
and helps them solve problems in designing and deploying resource-
limited sensor networks for real-world sensing applications. During this
course, students are required to work in teams to design and implement
some primitive sensing applications.
Prerequisite(s): CIS 527
Restriction(s):
Can enroll if Level is Rackham or Doctorate or Graduate
Can enroll if College is Engineering and Computer Science

CIS 5700  Advanced Data Mining  3 Credit Hours
This course provides an in-depth study of advanced data mining, data
analysis and pattern recognition concepts and algorithms. Course
content builds upon a first data mining course and explores advanced
machine learning algorithms, high-dimensional data, graph and temporal
data, and advanced methods and applications to deal with dynamic
stream data. Various applications will be considered, including social
networks and health informatics. Students will be able to understand the
research methods applied in the field and conduct an end-to-end data
mining project and document and present the results.
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

CIS 571  Web Services  3 Credit Hours
A study of the major concepts and techniques for enabling web service-
based interactions on the web. The objective is to familiarize students
with the recent trends in industry and academia to address web service
research issues. The course will address various aspects of web services,
including the reference model for web services (UUDI, SOAP, WSDL), web
service composition, semantic web services, security/privacy issues in
web services and an overview of web service standards (BPEL4WS, WS-
Security, etc). Students will participate in a major project.
Prerequisite(s): CIS 350 or ECE 370
Restriction(s):
Can enroll if Class is Graduate or Doctorate
Can enroll if Level is Graduate or Rackham or Doctorate
Can enroll if College is Engineering and Computer Science

CIS 572  Object Oriented Systems Design  3 Credit Hours
Students will be introduced to fundamental concepts and methods of
object design and development. Topics that will be covered include
object database concepts, data models, schema design (conceptual
schema and physical schemas), query languages, physical storage of
objects and indexes on objects, version management, schema evolution
and systems issues such as concurrent control and recovery from failure.
For application programming, a programming language such as C++ will
be used for database design and query language. (YR).
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate
NCFD or Graduate

CIS 574  Compiler Design  3 Credit Hours
Lexical analysis and symbol table; syntactical analysis of expressions
and statements; error detection; translation into intermediate code and
its correctness. (YR).
Prerequisite(s): CIS 350 or CIS 3501 or IMSE 350 or (ECE 370 and
MATH 276)
Restriction(s):
Can enroll if Class is Graduate

CIS 575  Software Engineering Mgmt  3 Credit Hours
Quantitative models of the software lifecycle; cost-effectiveness;
uncertainty and risk analysis; planning and modeling a software
project; software cost estimation (COCOMO, Function points); software
engineering metrics; software project documentation. Special emphasis
on emerging software process standards such as the Capability Maturity
Model of the Software Engineering Institute, and other international ones.
Prerequisite(s): CIS 553

CIS 577  S/W User Interface Dsgn&Analys  3 Credit Hours
Current theory and design techniques concerning how user interfaces
for computer systems should be designed to be easy to learn and use.
Focus on cognitive factors, such as the amount of learning required, and
the information-processing load imposed on the user. Emphasis will be
on integrating multimedia in the user interface.
Prerequisite(s): CIS 553*

CIS 578  Advanced Operating Systems  3 Credit Hours
Advanced techniques used in operating system design. Distributed
operating systems. Message-based operating systems. Operating
systems for parallel architectures. Layered techniques in operating
systems. Formal models of operating systems. Current trends in
operating system design. (YR).
Prerequisite(s): CIS 450 or IMSE 450 or ECE 478

CIS 579  Artificial Intelligence  3 Credit Hours
This course introduces students to the essential concepts, methods,
and techniques of artificial intelligence (AI) from a computer science
perspective. The general topics of the course will include a variety of
knowledge representations and algorithms for inference, decision-
making, planning, and learning. Modern intelligent systems, including
those that can handle uncertainty, will serve to motivate the course
material. The course will cover topics at a depth appropriate for an
introductory AI course at the graduate level. A student project may be
required.
Prerequisite(s): CIS 350 or CIS 3501 or IMSE 350 or (ECE 370 and
MATH 276)
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate or Doctorate
CIS 580  Data Analytics in Software Eng  3 Credit Hours
Full Course Title: Data Analytics in Software Engineering-This course focuses on state-of-the-art methods, tools, and techniques for evolving software. Topics such as reverse engineering, design recovery, program analysis, program transformation, refactoring, and traceability will be covered. There will be a project in which student teams participate.
Prerequisite(s): CIS 553

CIS 584  Adv Comp Net Sec  3 Credit Hours
This course consists of an in-depth examination of current technological advancements in computer and network security. Topics will include secure group communication (key generation, distribution, and management), secure routing and multicasting, identity-based encryption, digital signatures, broadcast authentication, device pairing, and malware/intrusion detection and mitigation.
Prerequisite(s): CIS 544
Restriction(s):
Can enroll if Level is Rackham or Doctorate or Graduate
Can enroll if College is Engineering and Computer Science

CIS 585  Adv AI  3 Credit Hours
This course will cover the most recent advances in the theory and practice of artificial intelligence, from a computer-science perspective. Topics covered will include the state-of-the-art in knowledge representation, uncertainty, learning, CSPs, graphical models, multi-agent systems, algorithms and heuristics, and propagation-based techniques. Various application areas will be taken from security, game theory, economics, finance, biology, sociology, and big data. (W)
Prerequisite(s): CIS 579
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

CIS 586  Advanced Data Management  3 Credit Hours
This course provides an in-depth examination of some advanced database technologies. Topics are selected from: object-relational databases, active databases, distributed databases, parallel databases, deductive databases, fuzzy databases, data warehousing and data mining, spatial and temporal databases, multimedia databases, advanced transaction processing, information retrieval and database security.
Prerequisite(s): CIS 556

CIS 587  Computer Game Design and Impl  3 Credit Hours
This course deals with the study of the technology, science, and art involved in the creation of computer games. The focus of the course will be hands-on development of computer games. Students will study a variety of software technologies relevant to computer game design, including: programming languages, scripting languages, operating systems, file systems, networks, simulation engines, and multi-media design systems. Lecture and discussion topics will be taken from several areas of computer science: simulation and modeling, computer graphics, artificial intelligence, real-time processing, game theory, software engineering, human computer interaction, graphic design, and game aesthetics. (YR)
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

CIS 588  Computer Game Design II  3 Credit Hours
This course is a continuation of the material studied in CIS 587. The focus of the course will be hands-on development of computer game development tools (e.g. game engines). Students will study a variety of software technologies relevant to computer game design, including: 3D graphics, computer animation, data-driven game design, multiplayer game programming, and game AI. Lecture topics will be taken from several areas of computer science: simulation and modeling, computer graphics, artificial intelligence, game theory, software engineering, human computer interaction, and game content development, and game aesthetics.
Prerequisite(s): CIS 587
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Software Engineering, Computer & Information Science

CIS 590  Selected Topics  1 to 3 Credit Hours
In-depth study of a CIS topic of contemporary interest. Topic varies from semester to semester.
Restriction(s):
Can enroll if Class is Graduate

CIS 590I  Select Topics in CIS  3 Credit Hours
Topic: Large Scale Enterprise Computing. This course helps students gain an understanding of the reasons companies chose large scale systems to run (and grow) their computing environments. Topics include capacity, scalability, integrity and security, availability, access to large amounts of data, systems management, and autonomic capabilities. Large scale enterprise computing technologies power all 50 of the top 50 worldwide banks and 22 of the top 25 U.S. retailers. The course provides a broad understanding of networking principles and the hardware and software components necessary to allow large scale systems to participate in a high volume data communications network. It discusses security principles and the hardware and software components needed to insure that the large scale systems resources and environment are secure.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham

CIS 591  Directed Research Project  1 to 3 Credit Hours
Special projects for laboratory or library investigation with the intent of developing initiative and resourcefulness. The student will submit a report of the project and give an oral presentation to a panel of faculty members at the close of the term.
Restriction(s):
Can enroll if Class is Graduate

CIS 624  Res Adv Cmp Net Sec  3 Credit Hours
An in-depth study of the current state-of-the-art in computer and network security. Selected topics will be from areas such as social network security, sensor network security, information and network provenance, cyber-physical system security, pervasive and mobile computing security, smart-grid security, and healthcare system security and privacy.
Prerequisite(s): CIS 584
Restriction(s):
Can enroll if Level is Rackham or Doctorate or Graduate
CIS 647  Rsrch Advances Ntwkng&Dist Sys  3 Credit Hours
This course presents an in-depth study of such topics as Internet analysis, approaches for network performance enhancements, multimedia applications, network coding, routing techniques, congestion control, wireless and sensor networks, vehicular networks, social networks, network science, and other emerging networking technologies and applications.
Prerequisite(s): CIS 537
Restriction(s):
Can enroll if Level is Doctorate or Rackham or Graduate

CIS 652  Info Visualztn & Comp Anim  3 Credit Hours
This course introduces algorithms for three-dimensional imaging, geometric modeling, geometric processing, information visualization, and computer animation. Particular research topics include volume graphics, point-based graphics, surface reconstruction, wavelet and subdivision methods, level of details, and physics-based animation. Students will study state-of-the-art papers in the above areas and be involved in a course project.
Prerequisite(s): CIS 551
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

CIS 658  Research Advances in Data Mgt  3 Credit Hours
An in-depth study of special topics of current interest in database systems. Selected topics will be from areas such as query optimization for emerging database systems, indexing for non-traditional data, data provenance for scientific databases, databases on modern hardware, self-managing databases, information integration and retrieval, bioinformatics, or other emerging database areas/applications.
Prerequisite(s): CIS 586
Restriction(s):
Can enroll if Level is Doctorate or Graduate or Rackham

CIS 676  Soft Arch Des & Analysis  3 Credit Hours
This course provides in-depth coverage of the concepts needed to effectively design and analyze software architectures. It introduces major architectural styles and design patterns and illustrates their application in designing and analyzing modern software architectures such as wireless, service-oriented, and security-based systems. The course also studies software architecture documentation practices that meet the needs of the entire architecture stakeholder community.
Prerequisite(s): CIS 553
Restriction(s):
Can enroll if Level is Doctorate or Graduate or Rackham

CIS 678  Research Advances Software Eng  3 Credit Hours
An in-depth study of the current state-of-the-art in software engineering. Selected topics will be from areas such as software maintenance, software testing, model-driven engineering, human factors in software engineering, software specifications, software management, emerging technology and applications, applying optimization techniques in software engineering, and empirical software engineering.
Prerequisite(s): CIS 565
Restriction(s):
Can enroll if Level is Rackham or Graduate or Doctorate

CIS 679  Computational Game Theory  3 Credit Hours
This course will introduce students to fundamental concepts and results in the area of computational game theory and economics, and expose them to the state-of-the-art and applications, providing them with the ability to make significant contributions to this quickly developing research area. This emerging area is at the interface of computer science and economics and seeks to build on classical results in game theory to provide practical models and effective algorithms better suited to study and solve problems in large complex systems in modern society.
Of major interest are compact models and efficient algorithms to understand and predict the complex global behavior that emerges from local interactions. Auctions, the Internet, social networks, computational biology, and interdependent security are some example application domains. (F)
Prerequisite(s): CIS 579
Restriction(s):
Can enroll if Level is Doctorate or Graduate or Rackham

CIS 685  Res Adv in Art Intell  3 Credit Hours
Full Course Title: Research Advances in Artificial Intelligence. An in-depth study of the current state-of-the-art in artificial intelligence. Selected topics will be from areas such as analytics, advanced neural nets and deep learning, multi-agent systems, auctions, cooperation, competition, genetic algorithms and evolutionary computing, swarm intelligence, game-theoretic approaches to decision and policy making, advanced techniques for natural language processing, and advanced techniques in knowledge discovery. (F)
Prerequisite(s): CIS 585
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

CIS 691  Adv Dir Study  1 to 3 Credit Hours
Advanced Directed Studies: Special topic in computer and information science. A project report and a seminar are required.
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science

CIS 695  Master's Project  3 Credit Hours
Application of the methodologies, tools and theory of software engineering to produce a specific validated software product. Projects can be faculty-generated, self-generated, and/or work related. All projects must be undertaken with one or more students under the supervision of the instructor. Prior to enrollment, a project proposal must be prepared and approved by the instructor and department chair. Standard software engineering documents must be prepared and approved at each phase of the project, and an oral presentation of the project is required. Course includes lectures and case studies. Permission of instructor required.
Prerequisite(s): CIS 553
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science
Can enroll if Program is MS-Software Engineering, MS-Computer & Information Sci

CIS 699  Master's Thesis  1 to 6 Credit Hours
Graduate students electing this course, while working under the general supervision of a member of the department faculty, are expected to plan and carry out the work themselves and submit a thesis for review and approval, and also present an oral defense of the thesis.
Restriction(s):
Can enroll if Class is Graduate
CIS 791  Adv Guided Study  1 to 3 Credit Hours
This is a guided study course for doctoral students on an advanced topic of research. A report and an oral presentation are required.
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science

CIS 798  Doctoral Seminar  0 Credit Hours
After attaining candidacy, every Ph.D. student is required to attend and actively participate in seminars each semester until graduation. In addition, each Ph.D. student is required to present a one-hour seminar about his/her research on a pre-assigned research topic, as well as lead a follow-up discussion on the future trends in his/her field. (F,W,S)
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if Major is Computer & Information Science

CIS 980  Pre-Cand Dissertation Research  1 to 9 Credit Hours
Full Title: Pre-Candidate Dissertation Research Dissertation work by a pre-candidate student in Computer and Information Sciences program conducted under guidance of the faculty advisor. (F,W,S)
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if Major is Computer & Information Science

CIS 990  Doctoral Dissertation  1 to 9 Credit Hours
Dissertation work by a student of the Ph.D. in Computer and Information Science program, conducted under guidance of the faculty advisor. The student must be a Ph.D. candidate. (F,W,S)
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if Major is Computer & Information Science

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Criminal Justice Studies (CRJ)

CRJ 509  Intel and Homeland Security  3 Credit Hours
Full Title: Intelligence and Homeland Security This course will provide an in-depth examination of the principles that guide the collection, analysis, and sharing of intelligence in the United States and how these principles impact homeland security. Topics will include the US Intelligence Community (CIA, FBI, military intelligence), the National Criminal Intelligence Sharing Plan, the National Intelligence Strategy, and the recent emphasis places on Intelligence-Led Policing. Emphasis will also be placed on the increased role that local and state law enforcement agencies as well as private sector entities play in contributing to the assessment of threats to homeland security. (F,W,S)
Restriction(s):
Can enroll if Level is Graduate

CRJ 513  American Constitutional Law  3 Credit Hours
A major theme of this course is the development of the constitution, especially focusing on the themes of judicial review: judicial self-restraint and judicial activism; the expansion of executive and legislative powers; and the rise of "substantive due process of the law". Prerequisite or equivalent recommended. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY).
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Class is Graduate

CRJ 514  Civil Rights and Liberties  3 Credit Hours
An analysis of the Bill of Rights and the 14th Amendment, with particular emphasis upon recent landmark or controversial Supreme Court decisions dealing with freedom of speech and religion, rights of criminal defendants; cruel and unusual punishment, right to privacy; civil rights and equal protection clause; and apportionment. Prerequisite or equivalent recommended. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Class is Graduate

CRJ 515  Restorative Justice  3 Credit Hours
This graduate course explores the practice of restorative justice as it has been engaged in historical and contemporary criminal justice contexts. Topics addressed include the principles and philosophies underlying restorative justice, differences between retributive and restorative models, victim-offender dialogue, and offender reintegration. Students will be asked to think critically about restorative and retributive systems and to apply these concepts to develop their own approach to restorative justice.

CRJ 517  Crimmigration  3 Credit Hours
Full Title: Crimmigration: Intersections of Immigration and Criminal Justice This course explores the intersection(s) of the criminal justice and immigration systems with special attention to race, class, and gender. It covers the evolution of American immigration policy and its application, the criminalization of immigrants, immigrant offending and victimization, the policing of immigrant communities, and the immigrant experience in the United States.
Prerequisite(s): CRJ 200 or CRJ 468 or CRJ 473 or SOC 200 or SOC 201

CRJ 518  CJ Research Methods  3 Credit Hours
Full Title: Criminal Justice Research Methods This course provides an introduction to methods of data collection and analysis, as well as a discussion of research design and the philosophy of social science, within the context of the field of Criminology and Criminal Justice. Attention is given to quantitative, qualitative, and mixed methodologies.
Restriction(s):
Can enroll if Level is Graduate

CRJ 543  Gender Roles  3 Credit Hours
This course will investigate the development of gender roles in childhood and adolescence due to either innate physiological differences of sociological patterning, the effect of gender roles upon male-female relationships within our society, and the possibility of transcending sociological gender roles in alternate modes of living. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (F, W).
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or SOC 201 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate
CRJ 546 Marriage and Family Problems 3 Credit Hours
Sociological analysis of problems encountered within the institution of marriage with particular reference to such issues as choosing a marriage partner, sexual adjustment, occupational involvement, conflict resolution, child rearing, divorce and readjustment. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 547 Family Violence 3 Credit Hours
Sociological analysis of various forms of family violence which occur disproportionately in the lives of girls and women. Topics such as incest, sexual abuse, date rape, wife battering, and elder abuse will be situated within the social and cultural context of contemporary gender relationships. Social and political responses to the phenomena will be examined. Permission of instructor is an optional prerequisite. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): SOC 200 or SOC 201 or SOC 301 or SOC 443 or PSYC 405 or WST 405
Restriction(s):
Can enroll if Class is Graduate

CRJ 553 Sociology of Law 3 Credit Hours
Various aspects of the relationship between law and society are explored. After a look at processes of law making, attention is turned to the administration of law. This involves a study of the activities of legislatures, courts, police, and correctional agents. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 555 Immigrant Cultures and Gender 3 Credit Hours
The history and culture of immigration since 1850, including: (1) formation and perseverance of immigrant communities and inter-ethnic boundaries; (2) relations between the homeland and the immigrant; and (3) impact of migration on family life and gender roles. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY).
Prerequisite(s): ANTH 101 or WST 275 or WGST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Can enroll if Class is Graduate

CRJ 565 Deviant Behavior/Soc Disorganz 3 Credit Hours
General analysis of the concepts of social deviance and social disorganizations: factors producing each condition, the effects of social control measures on the course of deviance and disorganization consequences for the social system, and the relationship between the two concepts. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 566 Drugs, Alcohol, and Society 3 Credit Hours
Analyses of the sociology of substance use and abuse. Provide a sociological framework for understanding issues and evaluating our nation's responses to the phenomenon of drug use. Drawing on sociocultural and social psychological perspectives, this course systematically examines the social structure, social problems, and social policy aspects of drugs in American Society. Additional assignments will distinguish this course from its undergraduate version.
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 568 Criminology 3 Credit Hours
Analysis of criminal behavior in relationship to the institutional framework of society. Emphasis upon the more routinized and persistent forms of criminality along with the joint roles played by victims, the criminal, the police, and all other relevant parties. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (F, W).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 569 Juvenile Delinquency 3 Credit Hours
The analysis of juvenile delinquent behavior in relationship to the institutional framework of society. Emphasis on the extent, causes, and methods of treatment of juvenile delinquency in the United States. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 570 Current Issues in Crim Justice 3 Credit Hours
Current issues in the field of criminal justice and law enforcement in the US and other countries. Topics include an evaluation of police activities, problems of apprehensions and prosecution, the courts and the correctional system, and the efficacy of the legal structure in its social context. Prerequisite or permission of instructor. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (F, W, S).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

CRJ 571  Comp Crim Justice Systems 3 Credit Hours
Description, analysis, and evaluation of selected criminal justice systems throughout the world. Course focuses on the various systems, theories, structures, methods, and functions, including common law systems and socialist law systems. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate
CRJ 572  Correctional Systems  3 Credit Hours
Analysis of the legal, social and political issues affecting contemporary correctional theory and practice. Topics covered include the history of corrections; the nature of existing institutions; the functions and social structure of correctional institutions; and alternatives to institutional incarceration; probation and parole. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (OC).
Restriction(s):
Can enroll if Class is Graduate

CRJ 582  Legal Ethics  3 Credit Hours
This course will explore the many ethical dilemmas faced by professionals in the legal system. We will pay particular attention to the criminal justice system and to the Rules of Professional Conduct for attorneys. Some of the topics we may address are: How should an attorney consider his/her own ethical beliefs when deciding the appropriate course of action in a case? How should a judge consider his/her own ethical beliefs when making a juvenile justice decision? How should a police officer determine the ethical course of action when the law's instructions are ambiguous? (F,W)
Restriction(s):
Can enroll if Level is Graduate

CRJ 588  Criminal Procedure  3 Credit Hours
Full Title: Criminal Procedure and Constitutional Law This class is a study of Constitutional law regarding criminal procedure in the United States. Initially the class reviews the federal and state court structure relating to criminal prosecutions and the flow of cases through those systems. The focus is then on the nature of individual rights under the Constitution, the case law, and the concept of the "exclusionary rule." The class then examines specific issues and procedures relating to arrests, searches, confessions and identifications, and analyzes the constitutional requirements for each. (F,W,S)
Restriction(s):
Can enroll if Level is Graduate

CRJ 590  Topics in Criminal Justice  3 Credit Hours
Examination of problems and issues in selected areas of criminal justice. Title as listed in Schedule of Classes will change according to the content of the course. Course may be repeated for credit when specific topics differ. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research.
Restriction(s):
Can enroll if Class is Graduate

CRJ 598  Directed Studies  1 to 6 Credit Hours
Directed individual study of any subject agreed upon by the student and the instructor. May not duplicate a formal course offering. (F, S, W).

CRJ 599  CRJ Master's Essay  3 Credit Hours
Full Title: Criminology & Criminal Justice Essay Criminology and Criminal Justice Master's degree non-thesis students must complete a major essay addressing the application of substantive or theoretical issues in criminology or criminal justice to current issues or practices in the field. The major paper may be based on papers completed in other graduate courses but must be of higher quality and depth than a usual term paper. The topic must be approved in advance, and approved upon completion, by the graduate faculty advisor.
Restriction(s):
Can enroll if Level is Graduate
Can enroll if Major is Criminology & Criminal Justice, Criminal Justice Studies

CRJ 699  CRJ Thesis  4 Credit Hours
Full Title: Criminology & Criminal Justice Thesis Students electing the Thesis option in the last stage of the MS in Criminology & Criminal Justice program will work under the general supervision of a member of the graduate faculty in the Criminology & Criminal Justice Program but will plan and carry out the work independently. Students should obtain a copy of the thesis requirements from the CASL Office of Graduate Programs or the Program Director before registering for this course. The student will submit a report on the thesis and give an oral presentation to a panel of faculty members when the thesis is completed.
Prerequisite(s): CRJ 510
Restriction(s):
Can enroll if Level is Graduate
Can enroll if Major is Criminal Justice Studies, Criminology & Criminal Justice

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Decision Sciences (DS)

DS 500  Accelerated Statistics  2 Credit Hours
This course will introduce fundamental concepts and methods in data analysis, probability, estimation, and statistical inference for application in management and management science. Topics include: basic probability theory, discrete and continuous random variables and distributions, sample and data analysis, sampling distributions, estimation, confidence intervals and hypothesis testing, introductory regression analysis, and utilization of statistical software packages. The course is designed to fulfill the statistics prerequisite for admission to SOM graduate degree programs, and is open only to those with strong mathematics backgrounds. Prerequisite: By permission of the Graduate Programs Office.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

DS 503  Managerial Stats and Opt I  3 Credit Hours
To develop basic competence and judgment in the application of quantitative methods for the analysis of probabilistic decision problems. Topics include: structure of probabilistic decision problems, probability theory and applications, statistical estimation and hypothesis testing, data collection and analysis, and applications. Selected software packages are used in homework and laboratory sessions. Prerequisite: DS500
Restriction(s):
Can enroll if Class is Graduate

DS 520  Applied Statistical Modeling  3 Credit Hours
This course explores statistical modeling and analysis techniques for aiding managerial decision making. Topics include: introduction to descriptive statistics, sampling methods and sampling distribution, confidence interval estimation, one sample hypothesis tests, one-way and two-way analysis of variance, simple and multiple linear and nonlinear regressions, and time series forecasting. Selected software packages are used in exercises, projects, and business case examples. Prerequisite: DS500
Restriction(s):
Can enroll if Class is Graduate
DS 553  Managerial Stats and Opt II  3 Credit Hours
To develop basic competence and judgment in the application of
categorical analysis to the solution of decision problems. Topics include:
univariate and multivariate regression analysis, one-way analysis of
variance (ANOVA), linear programming, integer programming, and
network models. Selected software packages are used in homework and
laboratory exercises.
Prerequisite(s): DS 503

DS 570  Management Science  3 Credit Hours
To develop basic competence in introductory management science
and operations research. Topics include: problem formulation and
model development in optimization, linear programming (LP), duality
theory, economic interpretation, and sensitivity analysis, introduction to
integer programming (IP), special linear programs, network modeling,
and introduction to non-linear programming (NLP). Selected software
packages are used in laboratory exercises and in optimization project.
Restriction(s):
Can enroll if Class is Graduate

DS 630  Applied Forecasting  3 Credit Hours
This course explores various quantitative modeling methods used
in forecasting. Topics include: moving averages, various smoothing
techniques, trends- and seasonal forecasting, univariate- and multivariate
regression based time series analysis (ARMA, ARIMA). Selected software
packages are used in laboratory exercises and in an applied forecasting project.
Prerequisite(s): DS 520 or IMSE 514

DS 631  Decision Analysis  3 Credit Hours
This course entails study of analytic techniques for rational decision
making that address uncertainty, conflicting objectives, and risk
attitudes. Topics covered in the course include modeling uncertainty,
rational decision making principles, representing decision problems
with value trees, decision trees and influence diagrams; solving value
hierarchies, decision trees and influence diagrams; defining and
calculating the value of information, incorporating risk attitudes into the
analysis and conducting sensitivity analysis.
Prerequisite(s): DS 520 or IMSE 514
Restriction(s):
Can enroll if Class is Graduate

DS 632  System Simulation  3 Credit Hours
In this course students will learn how to design, model, and implement
discrete-event computer simulation models of real or conceptual
systems. Simulation studies will be conducted using contemporary
software such as ProModel. Student will learn random number generation,
applying distribution sampling, and conducting output analysis.
Prerequisite(s): DS 520 or IMSE 514
Restriction(s):
Can enroll if Class is Graduate

DS 633  Data Mining for Business Appl  3 Credit Hours
The purpose of this course is to provide students with both quantitative
and qualitative exposure to the field of Data Mining, a topic of immense
importance and relevant to the study of Business Analytics. Data Mining
is the process of discovering meaningful correlations, patterns and
trends in large data sets and employs statistical and mathematical
techniques. Students will be exposed to theory, computation, tools
& techniques to analyze repositories of data from a vast array of
business applications with a view to implement successful business
strategies aimed at improved decision-making. The course contents are
representative of three primary areas of analytics- prescriptive, predictive,
and descriptive that define the core of studies offered in our Masters of
Science in Business Analytics program. Selected software packages are
used in exercises to solve data mining problems. (F) (W)
Prerequisite(s): (DS 520 or IMSE 514) and DS 570
Restriction(s):
Can enroll if Class is Graduate

DS 635  Analytics Experience Capstone  3 Credit Hours
The purpose of this course is to provide students with an experience that
allows them to demonstrate application of integrative knowledge aimed
at addressing an industry relevant decision-making problem by drawing
on the breadth and depth of the Business Analytics programmatic
curriculum. The plan of studies requires that the student complete this
course under the direction and guidance of the Instructor who may enroll
the services of an industry expert for advice. Depending on the size and
complexity of the problem, one or many students may be assigned to
the project. The deliverables for the course are a detailed project report
describing evaluation and analysis of the problem to be presented at a
public setting. The course can be finished in one or two semesters. (F) (W)
Prerequisite(s): (DS 520 or IMSE 514) and DS 570 and DS 630 and
DS 631* and DS 632*
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Program is

DS 638  Adv Topics in Mgmt Science  3 Credit Hours
This is the second in Management Science offering advanced topics
beyond the DS 570 course. Among the topics included are algorithms
in-dynamic programming, nonlinear programming, game theory, goal
programming, Markov chains, Markov decision processes, queueing
theory, inventory theory, and simulation.
Prerequisite(s): DS 570
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Economics (ECON)

ECON 5011 Monetary Economics  3 Credit Hours
This course examines financial institutions in a macroeconomic theoretical context. A rigorous treatment of monetary theory is presented followed by practical discussion of U.S. monetary policy as implemented by the Federal Reserve System. Students cannot receive credit for ECON 411 and ECON 4011 or ECON 5011.
Prerequisite(s): ECON 311 and ECON 301
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Public Policy, Economics

ECON 5015 Introduction to Econometrics  3 Credit Hours
The theory and practice of the statistical analysis of economic relationships. Topics covered include the construction and estimation of econometric models and tests of economic theories, emphasizing the use of multiple linear regression. Students cannot receive credit for ECON415 and ECON 4015 or ECON 5015.
Prerequisite(s): MATH 113 or MATH 115 and ECON 305
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Economics, Public Policy

ECON 5021 Economics of the Labor Sector  3 Credit Hours
Theoretical analysis and empirical studies of the nature and operation of labor markets. Includes theories of wage determination and income distribution, the nature of unemployment, the impact of collective bargaining on the economy, the extent and economic effects of discrimination, and the nature and effects of government wage and employment policies. Students cannot receive credit for ECON 421 and ECON 4021 or ECON 5021.
Prerequisite(s): ECON 302
Restriction(s):
Can enroll if Class is Graduate

ECON 503 Economics and Public Policy  3 Credit Hours
In this course students will review basic neoclassical microeconomics theory and learn to apply it to the analysis of public policy issues. Microeconomics offers important insights into the behavior of businesses, consumers, and government entities. We will review key microeconomic concepts, applying each to an array of public policy questions. Next we'll evaluate resource allocation via the market system and consider how public policy might address situations where the market fails to produce desirable results. Lastly, we'll learn about the basic tools economists use to evaluate public policies. (YR)
Prerequisite(s): ECON 201 and ECON 202
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Can enroll if College is Business

ECON 5065 History of Economic Thought  3 Credit Hours
Course examines the evolution of economic thought and theory from the early origins to the present, focusing on the major contributions to economics, especially from Adam Smith onward, and assesses the current condition of economic analysis. Students cannot receive credit for ECON 465 and ECON 4065 or ECON 5065.
Prerequisite(s): ECON 302
Restriction(s):
Can enroll if Class is Graduate

ECON 5085 Public Finance  3 Credit Hours
Analysis of the role of government in the economy. Course examines theories of the need for and nature of government intervention in economic activities. Includes analysis of public goods, externalities, taxation, state, and local finance, and models of public decision making. Students cannot receive credit for ECON 481 and ECON 4085 or ECON 5085.
Prerequisite(s): ECON 302
Restriction(s):

ECON 533 Antitrust and Regulation  3 Credit Hours
This course uses economic theory to examine major antitrust laws and to evaluate government regulation of industry. ECON 331, Industrial Organization, is valuable background to this course although it is not a prerequisite. Students cannot receive credit for ECON333 and ECON433 or ECON533(OC).
Prerequisite(s): ECON 202

ECON 537 Behavioral Public Policy  3 Credit Hours
This course teaches you to apply the insights from behavioral economics and psychology to public policy design. Empirically-based behavioral science offers policy makers the opportunity to decrease the impact of psychological limitations of lazy or boundedly rational individuals. In this course we consider various public policies that are informed by behavioral science research in the areas of retirement savings, household borrowing, health care, energy use and choice of nutrition. Graduate version of the course requires completion of additional assignments.
Prerequisite(s): (ECON 201 and ECON 202) or PPOL 500
Restriction(s):
Can enroll if Class is Graduate

ECON 538 Beh Econ for Business & Policy  3 Credit Hours
This course is a reading intensive seminar on behavioral economics, which is the combination of psychology and economics that investigates what happens in markets in which some agents display human limitations and complications. The course focuses on the behavioral economics theory and its’ application to business practice and policy decision making. Specifically, in this course we: (1) examine the ways in which people deviate from the standard economics models, including irrationality, preferences for fairness, prosperity to cooperate, trust, dual-interest, empathy, and emotions; (2) explore behavioral economics theories and models; discuss how the behavioral economic theories and models can be applied to solve business and policy problems. Graduate version of the course requires completion of additional assignments. Students cannot receive credit for ECON 336 and ECON 438 or ECON 538. (F,W,AY)
Restriction(s):
Can enroll if Class is Specialist or Graduate or Doctorate

ECON 542 Economic Development  3 Credit Hours
A survey of economic problems currently affecting third world countries and the various policy options available to them. Topics covered will include agrarian vs. industrial growth, and monetary and fiscal policies, planning problems, foreign exchange and debt problems. Students cannot receive credit for ECON 342 and ECON442 or ECON 542(OC).
Prerequisite(s): ECON 201
Restriction(s):
Can enroll if Class is Graduate
ECON 544  Economics of the Middle East  3 Credit Hours
Survey of socio-economic issues of the post-WWII Middle East, using textbooks and web-based readings. Topics include population growth, urbanization, migration, gender issues, land reform, privatization, and stabilization policies. The Arab-Israeli conflict is not a focus of study. Grade based on papers and exams. Students cannot receive credit for ECON 344 and ECON 444 or ECON 544.
Prerequisite(s): ECON 201 or ECON 202
Restriction(s): 
Can enroll if Class is Graduate

ECON 547  International Finance  3 Credit Hours
This course studies the large-scale economic issues in interdependent economies, such as the behavior of exchange rates, interest rates, income, wealth, prices, and the balance of payments. International finance focuses particularly on economic policies in a world with a multitude of currencies and increasingly integrated goods, financial, and capital markets. Students cannot receive credit for ECON 347 and ECON 447 or ECON 547.
Prerequisite(s): ECON 201
Restriction(s): 
Can enroll if Class is Graduate
Can enroll if Major is Economics, Public Policy

ECON 548  International Trade  3 Credit Hours
Course analyzes in depth the debate of free trade vs. protectionism. Different theoretical models of the "gains from trade" are presented, as well as studies of their empirical validity. Some historical perspective is included, as well as discussion of the current situation of the European Union. Students cannot receive credit for ECON 348 and ECON 448 or ECON 548.
Prerequisite(s): ECON 201 or ECON 202
Restriction(s): 
Can enroll if Class is Graduate
Can enroll if Level is Graduate
Can enroll if Program is MPP-Public Policy

ECON 582  Regional Economics  3 Credit Hours
Course explores methods of economics evaluation of regions in terms of intra- and inter-regional activity. Regions may smaller than a nation, be a collection of nations, or be composed of portions of more than one nation. Theoretical topics include the theories of (1) the location of the firm, (2) spatial demand, (3) agglomeration economies, and (4) input-output analysis. Regional development policy is discussed using Michigan and Ontario as subjects. Students cannot receive credit for both ECON 382 and ECON 482.
Prerequisite(s): ECON 201 or ECON 202 or ECON 2001
Restriction(s): 
Can enroll if Class is Graduate
Can enroll if Program is MPP-Public Policy

ECON 583  Urban Economics  3 Credit Hours
The economics of the city and the introduction of space in economic analysis; the determination of land use patterns, the location of firms and industries, and an urban area's growth; economic analysis and policy issues concerning urban poverty, housing, transportation, the local public sector, and other urban problems. Students cannot receive credit for ECON 381 and ECON 483 or ECON 583.
Prerequisite(s): ECON 201 or ECON 202 or ECON 2001
Restriction(s): 
Can enroll if Class is Graduate

ECON 597  Economics Seminar  3 Credit Hours
An advanced study in selected areas of economics. Topics vary; see the current Schedule of Classes for topics and prerequisites. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (OC).
Restriction(s): 
Can enroll if Class is Graduate

ECON 599  Directed Research  1 to 3 Credit Hours
Independent study under the direction of a faculty supervision in advanced topic areas. Normally must be elected on the "pass/fail" option, in which case it does not count toward credit hour requirement or concentration. Special consideration for the A through E grading option must be approved by members of the Economics discipline. In all cases students must have faculty supervision's permission to register. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (F; W; S).
Restriction(s): 
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Educ A-Theoretical Foundatsn (EDA)

EDA 500  Theoretical Foundations of Ed  3 Credit Hours
This is an advanced seminar course in educational theory. It involves a systematic examination of numerous theories that have played a major role in shaping American education. Among these are: 1) ideologies, 2) ethical theories, 3) learning theories, 4) instructional theories, and 5) theories of study. These have provided education with different moral outlooks, different social objectives, different curricula, and different teaching methods.
Restriction(s): 
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EDA 501  Adv Social Fndtions of Ed  3 Credit Hours
This advanced seminar will investigate various aspects of formal education taking into account historical, philosophical, political, social, cultural, religious and economic contexts. Within these contexts, the course will identify and examine school reform and change issues and trends as they relate to complex and rapidly changing local, national and global society.
Restriction(s): 
Can enroll if Class is Post-baccalaureate NCFD or Graduate
Can enroll if College is Education, Health, and Human Services

EDA 515  Comm & Schools: Partnerships  3 Credit Hours
Communities and Schools: Building and Sustaining Partnerships offers an examination of the role that communities play in schools' achieving public aims and the value that alliances have on the overall delivery of instruction. Thus, the course reviews various arguments and presents the student learner with the opportunity to connect the theory to practice so that she/he can develop her/his own views on the need and value of these methods. (YR)
EDA 519  Early Literacy/Language Development  3 Credit Hours
This course examines early language development, the factors that contribute to its growth and the role that it plays in the development of literacy. Diagnostic techniques for assessing language and literacy and teaching strategies and materials to facilitate language and literacy growth in children birth through third grade will be discussed.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

EDA 520  Community Action: Detroit  3 Credit Hours
Using the Detroit Metropolitan region as a case study, students will examine the local history of different types of community organization-grassroots citizen action groups, non-profit social service agencies, issue coalitions, and government-sponsored councils-as a way of understanding the concepts of self-interest, power, institutional change, community control, and leadership. The class will examine how history, ecology, culture, economics and individuals working in groups shape communities including Detroit. Through this examination, students will develop the understanding and skills needed to act as collaborators and leaders in the community working with different organizations to help empower citizens and affect social change. (YR)

EDA 521  Comm Based Edu Seminar  1 Credit Hour
This seminar is designed to support students pursuing the MA in Community Based Education. By developing an extended learning community the course will help students build connections between theory and practice by hosting regular research talks with local experts and professionals in the field. It will also support students in developing essential skills that will help them be successful in the field such as responding to an RFP, developing a conference proposal, writing for publication, and preparing a proposal for a foundation. (F) (W)

EDA 530  Loc Govt for Teach/Admin  1 to 3 Credit Hours
At the seminar, teachers participate in interactive learning activities with local government staff members. Officials serve as resource people, not lecturers. Teachers experience each lesson through the eyes of their students. All participants provide complete lesson plans for each activity, making it easy to share favorites from the course/academy with colleagues. Teachers work on developing coordinated learning experiences in local government including field trips, case studies and class visitations drawn from both school district and local government resource-bases.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

EDA 550  Hist/Theory of Bilingual Education  2 to 3 Credit Hours
This course provides an extensive background on bilingual education (programs where two languages are used as media of instruction) in the United States, and events that led to the inception of such programs on the Federal as well as the State levels. The course provides a background on the concept itself, its rationale and implementation. (OC)
Restriction(s):
Can enroll if Class is Graduate

EDA 555  Language, Culture, Literacy & Power in Education  3 Credit Hours
During this course we will examine the social/cultural functions of language with an emphasis on schools and other applied educational settings. Through our readings, discussions, and class activities, students will gain a greater appreciation for the ways in which language varies across cultures, social settings, and situations.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham
EDA 810  Seminar in Critical Pedagogy   3 Credit Hours
This course will engage students in an in-depth study of pedagogy and will allow for the examination their own disciplines through a critical theory lens. Students will be expected to problematize their disciplines core tenets and consider teaching for today's urban/metropolitan schools and curriculum.
Restriction(s):
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

EDA 820  Public Pedagogy   3 Credit Hours
This course examines the out-of-school spaces and experiences in an effort to revision our understanding of what counts as education. Participants will complete case studies of the physical, social, and political places inhabited by the people in Detroit and the surrounding communities as a source for reimaging teaching and learning in ways that connect the school and the community to empower students, teachers and the community to create educative experiences that cultivate their own agency in the community.
Prerequisite(s): EDK 823 and EDK 825 and EDK 820
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate or Specialist

EDA 855  Lang,Culture,Litrcy,Power in Ed   3 Credit Hours
During this course we will examine the social/cultural functions of language with an emphasis on schools and other applied educational settings. Through our readings, discussions, and class activities, students will gain a greater appreciation for the ways in which language varies across cultures, social settings, and situations.
Restriction(s):
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Educ B-Educational Admin (EDB)

EDB 500  Multicult Ed in US Classroom   3 Credit Hours
The theoretical concepts from the history of education, educational research, and the social sciences will form a base for studying educational trends, issues, and reforms in our society of diverse origins and outlooks. Topics for discussion may include: issues in reform movements; social, economic, pedagogical, and ethical problems related to education; and problems and prospects in international educational competition. The focus will be on institutional problems and processes related to quality education for pupils in our multicultural society.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EDB 501  Leadership and Administration   3 Credit Hours
Administration and supervision of elementary, middle, and secondary school entails the analysis of organizational arrangements at both the classroom and school level. This course will deal with applications and practices that develop competencies and behaviors that educators need to supervise, evaluate, and lead organizational and instructional improvement efforts for school, staff, and students.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDB 502  School and Community Relations   2 or 3 Credit Hours
Examines interactions of schools and their communities: citizens' role/involvement in governance of education, internal and external communication concepts and practices, politics of education, community power and pressure groups, and organizational culture and climate.
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if Degree is MA in Educational Leadership, Doctor of Education, Education Specialist

EDB 503  Reading Programs: K-12   3 Credit Hours
Overview of K-12 reading programs. Examines district, building, and classroom models, program development, implementation, and assessment/evaluation. Analysis of supervisory roles and leadership alternatives. Writing and technology connections will be explored.
Prerequisite(s): EDD 519
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if College is Education, Health, and Human Services

EDB 505  Intro to Educ Administration   3 Credit Hours
The course will provide an overview of educational administration and cover basic issues facing school administrators. It provides an introduction to the role of the school leader in contemporary educational programs and services. Students will examine opportunities in school administration and begin to develop a knowledge base for leadership in a variety of educational settings.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDB 507  Strategic Comm for Admin   3 Credit Hours
This Internet course addresses three levels of administrative communications - individual, group and organization - and examines the concepts and skills needed to be an effective communicator. Students will develop applications emphasizing goal-oriented communications and making strategic choices in content, structure, style and delivery. An emphasis is given to the design and best use of computer technologies such as Word and PowerPoint applications. The course also covers basic ethical and legal issues of workplace communications.
Restriction(s):
Can enroll if Class is Graduate

EDB 521  Current Issues in Early Ed   2 Credit Hours
Examines the expanding field of early childhood in order to understand major issues which are shaping the development and support of early education and child care programs. Designed for present and future teachers, administrators, and other workers in the field of early childhood, and for the general public who must participate in major pending decisions relating to such questions as proposed changes in state licensing, teacher certification, and funding sources.
Restriction(s):
Can enroll if Class is Graduate
EDB 522  Lead Advoc Admin Early Child  3 Credit Hours
This course promotes the role of the early childhood educator as a leader and advocate for young children and families. It is designed for present and future teachers, administrators and other professionals who participate in decisions relating to public policy legislation, state licensing, teacher certification, funding resources, parental involvement and other issues affecting young children and families.
Prerequisite(s): EDC 240
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if Level is Graduate or Rackham

EDB 523  Legal and Reg Issues in Ed  2 or 3 Credit Hours
This class will focus on important legal and regulatory issues related to public, education, and nonprofit organizations. It will consider the various court and administrative decisions which affect these. Numerous case situations will be used to facilitate the student's learning.
Restriction(s):
Can enroll if Level is Rackham or Graduate

EDB 524  Site-Based Management  2 Credit Hours
Site-based management in organizations is an evolving type of organizational improvement effort. Shared planning and participative decision-making are other related vehicles for enabling local organizational units to plan and execute their own processes, goals, and outcomes. An examination of the policies, practices, evolving research, impediments, and promoters of site-based management will be reviewed, along with case studies of success stories.
Restriction(s):
Can enroll if Level is Graduate or Rackham

EDB 540  School Budgeting and Finance  3 Credit Hours
Basic principles and actual practices of financial administration and accounting for state/local governments, public school systems, and non-profit organizations, particularly budgeting and financial reporting within the context of other organizational processes and political demands and/or requirements. As one of the required seminars for the Educational Administration Certification, the case method will be employed to illustrate issues and problems of school financial administration.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDB 550  Admn of Human Resources  3 Credit Hours
This seminar will examine human resource administration activities in public, educational and nonprofit settings. Issues such as recruiting, selection, planning, performance appraisal, contracting and collective bargaining will be related to the overall administrative activities. Emphasis will be placed on the connections between human resource issues in public, education, and nonprofit organizations.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDB 560  Organizational Dev and Theory  2 or 3 Credit Hours
Students will learn how organizations are structured and shaped, know what features of organizations vary and the parameters on which they vary, and be able to analyze, synthesize, and apply concepts to reduce organizational uncertainty, and to improve and regulate organization behaviors and outcomes. Attention will also focus on top down and participatory administration in organizations, and change in public, educational, and nonprofit organizations and agencies.
Restriction(s):
Can enroll if Class is Graduate

EDB 561  Organizational Dev and Theory  2 or 3 Credit Hours

EDB 562  Labor Relat in School Settings  3 Credit Hours
The seminar will consider the impact of collective bargaining on traditional human resource administration in public, education, and nonprofit settings. It also will focus on developing an initial competency in the various activities associated with collective bargaining situations.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDB 568  Info Sys and Stats for Admin  3 Credit Hours
This course will introduce Educational Administration students to descriptive and basic inferential statistics. Participants will use microcomputers and software to perform elementary statistical analyses, and to prepare presentation quality reports and graphics making use of statistical information.
Restriction(s):
Can enroll if Level is Professional Development or Graduate or Rackham

EDB 581  Strategic Plng/Needs Assess  2 or 3 Credit Hours
This course develops the strategic planning and needs assessment competencies of participants. Emphasized in the course is the "cascade" process of information gathering involving interviewing, focus groups, and surveys as applied in strategic planning.
Restriction(s):
Can enroll if Class is Graduate

EDB 582  Policy Analysis & Development  3 Credit Hours
Policy formulation involves two different activities: 1) identifying and assessing alternative courses of action, i.e., deciding what, if anything, needs to be done about a problem; and 2) developing the policy, regulation or law that will carry an agreement in principle into effect. Both aspects of policy development will be covered in the course. (AY).
Restriction(s):
Can enroll if Class is Graduate

EDB 583  Program Evaluation  2 or 3 Credit Hours
This class will examine procedures for evaluating programs in public, education, and nonprofit settings. The concern will be to examine the various techniques available to determine whether a program is doing what it was intended to do. Students will utilize various techniques in examining a variety of case situations.
Restriction(s):
Can enroll if Level is Graduate or Rackham
Can enroll if Degree is MA in Educational Leadership, Doctor of Education, Education Specialist

EDB 586  Curriculum Delib and Develop  2 or 3 Credit Hours
Study of teaching, learning, evaluation, and outcomes of education in relation to curriculum study and development. Focus on policy issues, utilization of research and current effective practices related to the successful articulation and implementation of curricula.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDB 650  Assessment Seminar  1 to 3 Credit Hours
This class will focus on assessing the performance of individuals in administrative settings. There will be a variety of exercises which will provide an assessment of the students with regard to different administrative circumstances. Students will also evaluate their career plans and situation.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services
**EDB 700** Multicult Educ in U.S. Classroom  3 Credit Hours
The theoretical concepts from the history of education, educational research, and the social sciences will form a base for studying educational trends, issues, and reforms in our society of diverse origins and outlooks. Topics for discussion may include: issues in reform movements; social, economic, pedagogical, and ethical problems related to education; and problems and prospects in international educational competition. The focus will be on institutional problems and processes related to quality education for pupils in our multicultural society.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

**EDB 701** Leadership and Administration  3 Credit Hours
Administration and supervision of elementary, middle, and secondary school entails the analysis of organizational arrangements at both the classroom and school level. This course will deal with applications and practices that develop competencies and behaviors that educators need to supervise, evaluate, and lead organizational and instructional improvement efforts for school, staff, and students.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

**EDB 702** School and Community Relations  2 to 3 Credit Hours
Examines interactions of schools and their communities: citizens’ role/involvement in governance of education, internal and external communication concepts and practices, politics of education, community power and pressure groups, and organizational culture and climate.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate

**EDB 705** Intro to Educ Administration  3 Credit Hours
The course will provide an overview of educational administration and cover basic issues facing school administrators. It provides an introduction to the role of the school leader in contemporary educational programs and services. Students will examine opportunities in school administration and begin to develop a knowledge base for leadership in a variety of educational settings.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate

**EDB 720** Internship  1 to 3 Credit Hours
Students who lack the necessary experience in responsible administration will be afforded the opportunity to gain the experience in an internship. The class and the number of hours will be arranged to fit the needs of the students as determined by the program coordinator.

**Restriction(s):**
Can enroll if Level is Graduate or Rackham
Can enroll if College is Education, Health, and Human Services

**EDB 721** Central Office Internship  2 to 3 Credit Hours
Students who lack the necessary experience in central office administration will be afforded the opportunity to gain the experience in an internship. The class and the number of hours will be arranged to fit the needs of the students as determined by the program coordinator.

**Corequisite(s):** EDB 724

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate

**EDB 722** Seminar in Educ Leadership  3 Credit Hours
This course provides an examination of the theoretical background, current practices and applications associated with transformational leadership and futures-oriented management in a variety of educational and nonprofit organizations. The course addressed leadership theory, application, and practices to develop competencies and behaviors required of organizational leaders to lead, supervise, implement, and evaluate performance and practices in a variety of organizational settings.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate
Can enroll if Level is Doctorate or Specialist
Can enroll if Degree is Education Specialist, Doctor of Education

**EDB 723** Legal & Reg Issues in Educ  2 to 3 Credit Hours
This course will focus on important legal and regulatory issues related to public, education, and nonprofit organizations. It will consider the various court and administrative decisions which affect these. Numerous case situations will be used to facilitate the student’s learning.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate

**EDB 724** Superintendency  3 Credit Hours
This course is designed to explore the role of the public school superintendent, the challenges and conflict of the position, and the educational, political, cultural, and social influences of the superintendent. The course examines the basic functions, duties, and responsibilities facing the modern superintendent, while effectively responding to instructional leadership needs, fiscal affairs, government legislation, labor relations, and evaluation and accountability of and by the superintendent.

**Corequisite(s):** EDB 721

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

**EDB 725** Leadership Ethics  3 Credit Hours
This course examines concepts and skills required by organizational leaders in ethical decision-making and professional behavior. The course will cover ethical issues that leaders encounter and will analyze means by which they can respond ethically and professionally to difficult situations. The course will explore strategies for influencing a culture of high ethical and professional standards within organizations.

**Restriction(s):**
Can enroll if Level is Rackham or Specialist or Graduate or Doctorate

**EDB 740** School Budgeting & Finance  3 Credit Hours
Basic principles and actual practices of financial administration and accounting for state/local governments, public school systems, and nonprofit organizations, particularly budgeting and financial reporting within the context of other organizational processes and political demands and/or requirements. As one of the required seminars for the Educational Administration Certification, the case method will be employed to illustrate issues and problems of school financial administration.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate

**EDB 750** Assessment Seminar  1 to 3 Credit Hours
This class will focus on assessing the performance of individuals in administrative settings. There will be a variety of exercises which will provide an assessment of the students with regard to different administrative circumstances. Students will also evaluate their career plans and situation.

**Restriction(s):**
Can enroll if Class is Specialist or Doctorate
EDB 760  Admin of Human Resources  3 Credit Hours
This seminar will examine human resource administration activities in public, educational and nonprofit settings. Issues such as recruiting, selection, planning, performance appraisal, contracting and collective bargaining will be related to the overall administrative activities. Emphasis will be placed on the connections between human resource issues in public, education, and nonprofit organizations.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDB 762  Labor Rel in School Setting  3 Credit Hours
The seminar will consider the impact of collective bargaining on traditional human resource administration in public, education, and nonprofit settings. It also will focus on developing an initial competency in the various activities associated with collective bargaining situations.
Restriction(s):
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

EDB 783  Program Evaluation  2 or 3 Credit Hours
This class will examine procedures for evaluating programs in public, education, and nonprofit settings. The concern will be to examine the various techniques available to determine whether a program is doing what it was intended to do. Students will utilize various techniques in examining a variety of case situations.
Restriction(s):
Can enroll if Class is Specialist or Doctorate
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EDB 807  Strategic Comm for Admin  3 Credit Hours
This Internet course addresses three levels of administrative communications - individual, group and organization - and examines the concepts and skills needed to be an effective communicator. Students will develop applications emphasizing goal-oriented communications and making strategic choices in content, structure, style and delivery. An emphasis is given to the design and best use of computer technologies such as Word and PowerPoint applications. The course also covers basic ethical and legal issues of work-place communications.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDB 881  Strategic Plng/Needs Assess  2 or 3 Credit Hours
This course develops the strategic planning and needs assessment competencies of participants. Emphasized in the course is the "cascade" process of information gathering involving interviewing, focus groups, and surveys as applied in strategic planning.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDB 882  Policy Analysis & Development  3 Credit Hours
Policy formulation involves two different activities: 1) identifying and assessing alternative courses of action, i.e., deciding what, if anything, needs to be done about a problem; and 2) developing the policy, regulation or law that will carry an agreement in principle into effect. Both aspects of policy development will be covered in the course. (AY).
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDC 500  The Human Learner  2 Credit Hours
The growth and development of the human learner is studied, with stress upon teaching and learning from preschool through adulthood. Consideration will be given to theories of learning, development, and motivation, with the goal of identifying the implications of theory for educational practice.
Restriction(s):
Can enroll if Class is Post-baccalaureate Certificate only or Graduate
Can enroll if College is Education, Health, and Human Services

EDC 501  Intro to Learning Disabilities  3 Credit Hours
Overview of characteristics, identification, service delivery models, and issues pertaining to persons from preschool to adulthood with learning disabilities. Required course for Special Education-Learning Disabilities Certification.
Restriction(s):
Can enroll if Class is Post-baccalaureate Certificate only or Graduate
Can enroll if College is Education, Health, and Human Services
Prerequisite(s):
ABA and the process for selecting and implementing those procedures.

Through discussion, demonstration, and analysis, students will learn concepts of the field that were covered in Applied Behavior Analysis I. This is the second in a two course sequence in applied behavior analysis (ABA) that focuses on the fundamental principles, processes, and characteristics of ABA, basic elements in a scientific analysis of behavior, principles and tactics for analyzing and changing behavior, and fundamental elements and key terms that are essential to understanding the relationship between behavior and its environment. (YR)

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDC 503 LD Practicum K-12  1 Credit Hour
The K-12 LD Practica will provide beginning students with initial exposure to the practical aspects of teaching LD students in a variety of general and special education settings. Students will be required to observe and actively participate in instructional planning, teaching, managing, and monitoring LD students in K-12 settings. Students will also observe a variety of service delivery models including the resource room, inclusive settings, and tutorial situations. Graduate standing or permission of the instructor; concurrent enrollment in CS01.

Corequisite(s):  EDC 501

EDC 504 Pract Adol Devl&Clsrm Mgmt  1 Credit Hour
This one credit practicum consists of 45 clock hours of observation over the course of the semester in a secondary classroom. Reflective journals and guided assignments will focus the observations on an understanding of developmental concepts and classroom management policies. Active participation with secondary students will ensure the application and critique of these concepts in an educational setting.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDC 505 Adult Lrning:Theory & Practice  3 Credit Hours
This course introduces students to current theory and practice for understanding and working with adult learners in today's society.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDC 506 Applied Behavior Analysis I  3 Credit Hours
This is the first in a two course sequence in applied behavior analysis (ABA) that focuses on the fundamental principles, processes, and concepts of the field. These principles, processes, and concepts serve as the foundation of practice. Topics include: the definition and characteristics of ABA, basic elements in a scientific analysis of behavior, principles and tactics for analyzing and changing behavior, and fundamental elements and key terms that are essential to understanding the relationship between behavior and its environment. (YR)

EDC 507 Applied Behavior Analysis II  3 Credit Hours
This is the second in a two course sequence in applied behavior analysis (ABA) that focuses on the fundamental principles, processes, and concepts of the field that were covered in Applied Behavior Analysis I. Through discussion, demonstration, and analysis, students will learn about specific behavior change procedures based upon the principles of ABA and the process for selecting and implementing those procedures. (YR)

Prerequisite(s): EDC 506

EDC 508 Intro to Dvlpmntl Disabilities  3 Credit Hours
Full Title: Introduction to Developmental Disabilities This course will provide an overview of the issues related to individuals with developmental disabilities. Topics include the history, public policy issues, familial issues within the context of socio-cultural issues, and the role of families in the provision of services across the lifespan. Students will be exposed to the range of assessment practices for developmental disabilities and criteria for diagnosis. Other topics include educational and behavioral interventions, person centered planning/family centered support, post-school and adult issues, physical and mental health issues, services and supports to improve quality of life, controversial therapies, and ethical issues. (YR)

EDC 511 Dev Peer/Social Relationships  2 Credit Hours
Students will examine the processes of peer relations and socio-emotional development from birth to adolescence. Topics to be covered in this course include attachment, peer popularity and intimacy. As well, students will discuss the importance of the family on social development. Classroom environment and peers as educators will also be covered. (OC)

Prerequisite(s): EDC 340*

Restriction(s):
Can enroll if Class is Graduate

EDC 512 Soc Devl & Pos Guidnce Techn  3 Credit Hours
This course will examine the process of social and emotional development in childhood through adolescence. Positive strategies to promote and guide this development in the classroom will be explored using behaviorist and constructivist frameworks. Topics will include character education, discipline models, conflict resolution and family collaboration. Guiding the development of emotional regulation, perspective taking and peer relationships in children including children with special needs will be investigated.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if College is Education, Health, and Human Services

EDC 514 Early Child Ed Special Needs  3 Credit Hours
Focuses on the psychological and educational needs of the young child with special needs. Discusses identification techniques and educational strategies for teaching in a regular early childhood classroom with young children having special needs. Special emphasis will be placed on behavioral, linguistic, and intellectual needs. Suitable for classroom teachers, child care directors, and teachers in training.

Prerequisite(s): EDC 540 or (EDC 340 and (EDC 341) or EDC 240 or EDC 241)

Restriction(s):
Can enroll if Class is Graduate

EDC 516 Research Methods Beh Analysis  3 Credit Hours
Full Title: Research Methods in Behavioral Analysis The purpose of this course is to introduce the fundamentals of behavior-analytic research methods. The course will review single-case time series methodologies to assess various dimensions of behavior and evaluate the effects of interventions on behavior. Single-case research has played an important role in developing and evaluating interventions designed to modify some aspect of human behavior. This course will encompass a broad range of research areas that utilize single-case designs within both the behavior analytic literature and other disciplines including school psychology, medicine, and business. (YR)

Prerequisite(s): EDC 506*
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 517</td>
<td>Mgmt of Classroom Behavior</td>
<td>3</td>
<td>Provides intervention and management techniques for teachers and teacher candidates using principles of behavior modification. Includes examination of theoretical foundations, research and field reports, participation in self-management projects, and consideration of various applications in regular and special classrooms. Field experience is optional. Will focus on classroom management in early childhood and elementary environments, allowing a more focused examination of topics and case studies geared to those grade levels. <strong>Prerequisite(s):</strong> EDC 300 <strong>Restriction(s):</strong> Can enroll if Class is Post-baccalaureate Cert only or Graduate</td>
</tr>
<tr>
<td>EDC 520</td>
<td>Hum Sexuality:Psyc-Ed Concepts</td>
<td>2</td>
<td>The course is intended to acquaint elementary and secondary teachers with the elements that comprise sexuality as it relates to their lives and those of their students. Although a basic core of information is to be covered, the content of each class will provide for the needs and interests of the teachers. Teachers will be directly involved in identifying problems and the development and collection of strategies for problem resolution. Teachers who complete this program will meet the state requirements for certification in sex education/reproductive health. <strong>Restriction(s):</strong> Can enroll if Class is Graduate</td>
</tr>
<tr>
<td>EDC 525</td>
<td>Treat Plan/Eth Prof Cond ABA</td>
<td>3</td>
<td>Full Title: Treatment Planning/Ethical and Professional Conduct in Applied Behavior Analysis. This course provides a comprehensive approach to treatment planning in Applied Behavior Analysis. The course addresses application of the principles of Applied Behavior Analysis to intervention, assessment, implementation, evaluation, program continuation/maintenance, and data-based clinical decision making. Central to treatment are the ethical responsibilities for Applied Behavior Analysts. The Professional and Ethical Compliance Code for Behavior Analysts, as put forth by the Behavior Analyst Certification Board is addressed. Throughout the course, the behavior analytic literature is used as the basis for all coursework, discussion, and evaluation. (YR) <strong>Prerequisite(s):</strong> EDC 506</td>
</tr>
<tr>
<td>EDC 531</td>
<td>Constructivist Education</td>
<td>3</td>
<td>An examination of constructivist theory and its application to educational practices. The nature and stages from birth through adolescence of cognitive and social development from the constructivist viewpoints of Piaget, Vygotsky, and others will be discussed. A major focus will be the application of constructivist theory to educational goals, teaching strategies and curriculum. <strong>Prerequisite(s):</strong> (EDC 340 or EDC 240) and (EDC 341 or EDC 241) <strong>Restriction(s):</strong> Can enroll if Class is Graduate</td>
</tr>
<tr>
<td>EDC 539</td>
<td>Child Maltreatment and Trauma</td>
<td>3</td>
<td>This course will examine adverse childhood experiences, including the impact of physical abuse, neglect, sexual abuse, and other forms of psychological trauma. Particular emphasis will be placed on the role of trauma informed professionals to identify, assess, and support the needs children, youth, and families impacted by trauma and child maltreatment. This course will explore various levels of prevention, intervention, and collaborative response to suspected cases of child maltreatment by multi-disciplinary teams, including investigation and treatment. (YR) <strong>Restriction(s):</strong> Can enroll if Level is Graduate or Rackham or Doctorate</td>
</tr>
<tr>
<td>EDC 540</td>
<td>Advanced Child Development</td>
<td>3</td>
<td>An advanced study of the development of the child from conception through adolescence. Research on physical, cognitive, and psychosocial development will be explored and analyzed. Current applications of knowledge in this field will be examined as well as new innovations in both research and practice. <strong>Restriction(s):</strong> Can enroll if Class is Post-baccalaureate Cert only or Graduate</td>
</tr>
<tr>
<td>EDC 541</td>
<td>The Child: Birth to Three</td>
<td>2 to 3</td>
<td>An examination of current theories and findings concerning the physical, social, emotional and intellectual development of the young child from prenatal to three years of age. Topics include fetus maturation, capabilities of the newborn, language, cognition, and environmental influences on development. Theory will be related to infant care practices in the home and in early childhood centers. <strong>Restriction(s):</strong> Can enroll if Class is Graduate</td>
</tr>
<tr>
<td>EDC 542</td>
<td>EC:Fam/Sch/Com Collab Mult Soc</td>
<td>3</td>
<td>FULL COURSE TITLE: Early Childhood: Family School Community Collaboration in a Multicultural Society. Focuses on factors which influence the building of partnerships among early childhood professionals, families and communities. Includes understanding and working with culturally and linguistically diverse families. Various communication and problem-solving strategies which promote family involvement and community outreach are practiced through discussion and role play. <strong>Prerequisite(s):</strong> (EDC 340 or EDC 240) and (EDC 341 or EDC 241) <strong>Restriction(s):</strong> Can enroll if Class is Graduate Can enroll if College is Education, Health, and Human Services</td>
</tr>
<tr>
<td>EDC 543</td>
<td>Family/School/Community Collab</td>
<td>2</td>
<td>Characteristics, roles, and functions of contemporary families are described. Various communication and training strategies designed to promote collaboration and teamwork within and between the school staff, the families, and community are described and practiced through discussion, problem-solving activities, and role playing. Family effectiveness assessment instruments and strategies are also described and practiced. <strong>Restriction(s):</strong> Can enroll if Class is Graduate</td>
</tr>
<tr>
<td>EDC 544</td>
<td>Develop Assess of Young Child</td>
<td>3</td>
<td>Survey and demonstrations of formal and informal measures to assess young children's physical, social, intellectual, and emotional development. Instruction in some techniques appropriate for use by classroom teachers, childcare directors, health care professionals, and others who are interested in assessing the development of children aged birth to nine years. Students cannot receive credit for both EDC 545 and EDC 445. <strong>Prerequisite(s):</strong> EDC 340 or EDC 240 <strong>Restriction(s):</strong> Can enroll if Class is Graduate</td>
</tr>
<tr>
<td>EDC 545</td>
<td>Cog/Memory Dev in Children</td>
<td>3</td>
<td>Examines the theories and recent research on the development of cognition and memory. Selected topics include: perception, language, representation, social cognition and problem solving. Educational implications and strategies for developing children's thinking and memory are explored. <strong>Prerequisite(s):</strong> EDC 340 or EDC 540 <strong>Restriction(s):</strong> Can enroll if Class is Graduate</td>
</tr>
</tbody>
</table>
EDC 554  Formal & Informal Testing & Eval  2 to 3 Credit Hours
In this course students will develop their knowledge and skills in traditional and non-traditional methods for evaluating classroom learning, performance technology and training. Students will learn how to construct evaluations, tests, analyze evaluation results, conduct program evaluation and educational assessment in relation to performance technology, training and teaching and learning.
Restriction(s):
Can enroll if Class is Graduate

EDC 555  Assmt: Sec Lang Learning K-12  2 Credit Hours
In this course, students will learn to identify, assess, and place second language learners for appropriate instruction and instructional programs. Students will review, evaluate, and implement a variety of assessment instruments and strategies intended for use with limited English proficient students, K-12. Students will also examine the impact and issues regarding high-stakes assessments on English language learners. Official admission to and good standing in the teacher certification program are required. (W).
Prerequisite(s): EDD 596 and EDD 597 and EDD 547 and EDD 548
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDC 556  Learning & Classrm Assessment  3 Credit Hours
In this course students will examine the relationship between curriculum, instruction and assessment. Students will review different forms of assessment and evaluate the strengths and weaknesses of each format. Students gain experience in 1) selection of assessment formats based on curricular focus and student developmental levels; 2) development of assessments; and 3) decision-making based on the results of the assessments.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EDC 560  Rdg: Diag/Assessment Tech K-12  3 Credit Hours
Overview of K-12 reading diagnostic and assessment techniques. Review of state-mandated tests. Use of criterion referenced tests, norm-referenced tests, and informal inventories to develop individual reading profile. Results of diagnostic instruments will be interpreted to suggest appropriate instructional strategies. (YR).
Restriction(s):
Can enroll if Class is Graduate

EDC 561  Educating the Exceptional Chld  3 Credit Hours
Characteristics, identification, assessment and instruction of students with exceptionalities are addressed. Includes students with learning disabilities, behavior disorders, emotional impairment, mild mental retardation, communicative disorders, visual and hearing impairments, orthopedic impairments, giftedness, and chronic medical conditions. Service delivery models, general assessment procedures, and curricular and instructional adaptations that help integrate students with exceptionalities into the general education classroom will also be addressed.
Restriction(s):
Can enroll if Class is Graduate

EDC 580  Behavioral Assessment  3 Credit Hours
This course will focus on Functional Behavior Assessment, a process used in the field of Applied Behavior Analysis (ABA) that uses a variety of techniques and strategies to gather information that allow practitioners to identify the function, or purpose, of behavior. Essential elements of the Functional Behavior Assessment/Functional Analysis process will be addressed with emphasis on the interrelationship between assessment results and the development of interventions based upon the principles of ABA. (YR)
Prerequisite(s): EDC 506 and EDC 507

EDC 590  Literacy Instr & Assess for Els  3 Credit Hours
Full Title: Literacy Instruction and Assessment for English Language Learners. The course covers current and research-based pedagogy for literacy instruction and assessment for teaching English language learners. This course provides the knowledge and skills to effectively teach literacy to non-native speakers of English. (YR)

EDC 616  Needs Assessment  3 Credit Hours
Full Title: Needs Assessment Evaluation Capstone This course is designed to provide students with the theoretical and practical knowledge to design, complete and report a needs assessment evaluation for an organization. A culminating assignment requires the students to integrate the knowledge and skills they have developed over the course of their graduate studies in a capstone project. (YR)

EDC 620  Survey Research and Design  3 Credit Hours
This course provides an advanced focus on the theories, methods, and procedures for conducting survey research in education. Topics explored include advanced design of survey instruments, interview and focus group protocols, planning and budgeting survey research, and survey data analysis techniques. Sampling and mixed method design will be addressed.
Prerequisite(s): EDK 500 and EDC 556
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham or Graduate

EDC 622  Science and Human Behavior  3 Credit Hours
The philosophy of the science of behavior is the foundation of applied behavior analysis (ABA), learning that philosophy is key to the application of the fundamental principles, processes, and concepts of the field. This course will address seminal publications in the science of behavior and examine their application. (YR)

EDC 623  Ethics in ABA  3 Credit Hours
This course provides students pursuing the BCBA certification with a comprehensive examination of the Professional and Ethical Compliance Code for Behavior Analysts. Through reading and discussion of the code students will learn to recognize Code violations and avoid unethical behavior and Code violations in all aspects of practice. Throughout the course, case studies will be used as a basis for demonstrating Code violations. (YR)
Prerequisite(s): EDC 506 and EDC 507

EDC 624  Prog Develop, Super & Mgmt  3 Credit Hours
Full Title: Program Development, Supervision & Management This course seeks to address the selection, development, and implementation of behavior change procedures within the framework of strategies for personnel training, supervision, and management. Through the use of case studies, students will develop behavioral programming, consider the personnel issues to consider for effective programming, and examine strategies that allow for more effective personnel training, monitoring, and supervision. (YR)
Prerequisite(s): EDC 506 and EDC 507
EDC 630  Portfolio and Performance  3 Credit Hours
This course in an introduction to the theory and practice of performance and portfolio assessment. It examines the theory behind both forms of assessment including issues of validity, scoring, and the relationship to standards-based objectives. Topics include portfolio types, structures, contents and uses, as well as visual, written, oral, electronic and performance assessment. Students will create both a performance and a portfolio task, associated rubrics, and gain an understanding of how these types of assessments can impact teaching and learning.
Prerequisite(s): EDK 500 and EDC 556
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Graduate or Rackham
Can enroll if College is Education, Health, and Human Services

EDC 645  Transdisc Appr: Assess/Collab  3 Credit Hours
Culturally sensitive and family-centered approaches to assessing infants, toddlers, and young children with a variety of disabilities as well as determining family resources, needs and priorities will be the focus. Selecting and using assessment instruments and procedures in order to guide decision-making about determining eligibility for services, planning intervention goals and objectives, monitoring progress, and evaluating program effectiveness will be included. (YR).
Prerequisite(s): EDC 414 or EDC 514
Restriction(s):
Can enroll if Class is Graduate

EDC 701 Intro to Learning Disabilities  3 Credit Hours
Overview of characteristics, identification, service delivery models, and issues pertaining to persons from preschool to adulthood with learning disabilities. Required course for Special Education-Learning Disabilities Certification.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDC 714 Early Child Ed Special Needs  3 Credit Hours
Focuses on the psychological and educational needs of the young child with special needs. Discusses identification techniques and educational strategies for teaching in a regular early childhood classroom with young children having special needs. Special emphasis will be placed on behavioral, linguistic, and intellectual needs. Suitable for classroom teachers, child care directors, and teachers in training.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDC 731 Constructivist Education  3 Credit Hours
An examination of constructivist theory and its application to educational practices. The nature and stages from birth through adolescence of cognitive and social development from the constructivist viewpoints of Piaget, Vygotsky, and others will be discussed. A major focus will be the application of constructivist theory to educational goals, teaching strategies and curriculum. Additional course work differentiates this course from the master’s level course.
Restriction(s):
Can enroll if Level is Doctorate or Specialist

EDC 740 Seminar in Ed Psych/Spec Educ  3 Credit Hours
This course will focus on contemporary topics related to the development of knowledge of current theories in the areas of cognitive development, language, motor, and social development, in particular as they relate to issues in special education.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDC 756 Learning & Classrm Assessment  3 Credit Hours
In this course students will examine the relationship between curriculum, instruction and assessment. Students will review different forms of assessment and evaluate the strengths and weaknesses of each format. Students gain experience in 1) selection of assessment formats based on curricular focus and student developmental levels; 2) development of assessments; and 3) decision-making based on the results of the assessments.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDC 845 Transdisc Appr: Assess/Collab  3 Credit Hours
Culturally sensitive and family-centered approaches to assessing infants, toddlers, and young children with a variety of disabilities as well as determining family resources, needs and priorities will be the focus. Selecting and using assessment instruments and procedures in order to guide decision-making about determining eligibility for services, planning intervention goals and objectives, monitoring progress, and evaluating program effectiveness will be included. (YR).
Prerequisite(s): EDC 545
Restriction(s):
Can enroll if Class is Specialist or Doctorate

Other Content
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Educ D-Curriculum & Instructn (EDD)

EDD 501 Teach English in Second Grds  3 Credit Hours
Investigates the general and specific goals and objectives of English education. Trends, materials, and strategies are presented. A study of outstanding problems in the teaching of English composition, literature, grammar, and language are discussed. Official admission to and good standing in teacher certification program are required.
Corequisite(s):
Restriction(s):
Can enroll if Class is Graduate

EDD 502 Practicum: English Second Grd  1 Credit Hour
A supervised field experience related to the study of English in the secondary grades involving a minimum of 45 clock hours of observation and work spread over a semester in a school setting. Official admission to and good standing in teacher certification are required. Credit cannot be given for both EDD 502 and EDD 441.
Corequisite(s): EDD 501
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services
EDD 503  Wksp: Art in the Elementary Sch  2 Credit Hours
A course which presents the rationale, trends, and principles of art education for elementary teachers. Teachers will have ample opportunities to experiment with various art media such as printmaking, puppetry, paints, and clay. Different strategies that focus on the creative growth of children will be developed. (OC)
Restriction(s):
Can enroll if Class is Graduate

EDD 504  Inquiry Based Curr Prim Grades  3 Credit Hours
This course examines how teachers can apply inquiry method to all curriculum areas in the primary grades. Major focus will be designing curriculum to meet state and professional guidelines within a developmentally appropriate context.
Prerequisite(s): (EDC 340 and EDC 341) or (EDC 240 and EDC 241)
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

EDD 508  Practicum in Early Child Ed  1 Credit Hour
A supervised field experience related to the study of early childhood education involving a minimum of 45 clock hours of observation and work spread over a semester in an early childhood school setting. TB clearance, physician's statement of good health, and criminal background check are required. Students cannot receive credit for both EDD 410 and EDD 508. (F,W)
Restriction(s):
Can enroll if Class is Graduate

EDD 509  Workshop in Secnd Sci Educ  1 to 6 Credit Hours
Provides an opportunity for experienced professionals in junior and senior high schools to work on problems and topics related to the teaching of natural science.
Restriction(s):
Can enroll if Class is Graduate

EDD 513  Internship Elementary LD  2 or 3 Credit Hours
Field experience with elementary students with learning disabilities in regular and resource classrooms. Experiences include delivery of direct instruction through observation, tutoring, small and large group instruction, small and large group assessment, curriculum development, participation in the IEP process, collaboration with regular classroom teachers, and other activities under the on-site supervision of a certified teacher of LD and LD-certified university field supervisor.
Prerequisite(s): EDC 501 and EDN 501 and EDN 503 and EDN 504
Corequisite(s): EDD 508
Restriction(s):
Can enroll if Class is Graduate

EDD 516  Creativity/Crit Thnk Yng Childr  3 Credit Hours
This course intends to study the processes and products of creativity for both adults and young children. Strategies for promoting the emerging creative disposition of the young child, birth to eight years, will be explored. Areas of focus will include art, music, movement, dramatic play, improvisation, storytelling, and problem-solving. The importance of understanding and encouraging the young child's capacity for representation skills will be emphasized.
Prerequisite(s): EDC 340
Restriction(s):
Can enroll if Class is Graduate

EDD 517  Sem: Teaching Secondary MAT  1 Credit Hour
Draws upon the resources found in the directed teaching environment. Considers problems and issues in four broad areas: students in the school, teacher's professional responsibilities, curriculum understandings, and administrative/organizational problems. Open only to students enrolled in EDD 518.
Corequisite(s): EDD 518
Restriction(s):
Can enroll if Class is Graduate

EDD 518  Directed Tchg (MAT) Second Sch  7 to 12 Credit Hours
Directed teaching consists of a teaching internship in a selected classroom for a full term under the direction of an experienced teacher. Includes a period of observation followed by several weeks of responsible teaching. (F, W).
Prerequisite(s): EDA 500 and EDB 500 and EDC 502 and EDC 561 and EDC 554 and EDC 517 and EDT 511 and EDD 569
Corequisite(s): EDD 517
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services
Can enroll if Program is MAT-Teaching

EDD 519  Early Literacy/Language Develp  3 Credit Hours
This course examines early language development, the factors that contribute to its growth and the role that it plays in the development of literacy. Diagnostic techniques for assessing language and literacy growth in children through third grade will be discussed. (YR)
Prerequisite(s): EDC 340
Restriction(s):
Can enroll if Class is Grad in Education, Health, and Human Services

EDD 530  Concepts & Strat/Tchg:Mdl Lev  3 Credit Hours
FULL TITLE: Concepts and Strategies for Teaching at the Middle Level. Introduces current curricular trends and various teaching strategies for use at the middle school level to stimulate inquiry in the classroom. Opportunity will be provided to experiment with these strategies in videotaped, microteaching situations.
Restriction(s):
Can enroll if Class is Graduate
EDD 534 ML Curriculum & Instruction 3 Credit Hours
This course addresses curriculum development and instruction adapted to meet the unique needs and characteristics of the middle level student. Attention is given to instructional planning, presentation, and assessment of learning.
Corequisite(s): EDD 535
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 535 Field Exploration: ML 1 Credit Hour
Field exploration involving a minimum of 45 clock hours research activities related to the study of middle level curriculum development, instruction and students.
Corequisite(s): EDD 534
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 536 Grad Sem in Early Childhood Ed 3 Credit Hours
This course examines the theories, research, and educational practices developmentally appropriate for children: infancy through primary grades. The seminar provides the theoretical foundation for the field placement (EDD 594). Strategies for planning effective curricular activities, arranging a learning environment, communicating and working with families and staff, and administering early childhood programs will be discussed. The issues of multiculturalism, family centered approaches, addressing the inclusion of children with special needs and professional development will be addressed. Open only to graduate students seeking an early childhood endorsement and approved by the program coordinator. TB test, physician's statement of good health, and criminal background check are required. (W).
Prerequisite(s): EDC 540
Restriction(s):
Can enroll if Level is Graduate or Rackham or Professional Development
Can enroll if Degree is Master of Arts

EDD 537 Administrative Intern in EC 3 Credit Hours
This internship will focus on providing experience in central early childhood office administration. Recruitment, communication skills, financial administration, grant writing, leadership, program evaluation and program development and other topics related to the administration of Early Childhood programs will be developed and practiced. This course studies the procedures for evaluating early childhood programs and for continual program development in their leadership.
Prerequisite(s): EDD 412 or EDD 536
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham or Graduate
Can enroll if College is Education, Health, and Human Services

EDD 542 Differentiating Inst K-12 Clrm 2 to 3 Credit Hours
Individualized instruction combined with the latest information on the brain and our understanding of multiple intelligences leads us to a new method of meeting the needs of students called differentiating instruction. This course will look at the concept of differentiating instruction in-depth.

EDD 543 Tchg Writing at the Scnd Lvl 2 to 3 Credit Hours
This course is designed to help the classroom teacher promote functional and creative writing among students at the secondary school level. Attention will be given to both theory and research with emphasis on the development of instructional strategies, teaching materials and practical resources.
Restriction(s):
Can enroll if Class is Graduate

EDD 546 Intervention Strat EC Spec Ed 3 Credit Hours
Course Title: Family-Centered Intervention Strategies for Early Intervention and Early Childhood Special Education. Strategies and methods which early educators can use when planning and implementing interventions for infants, toddlers and young children with disabilities and their families. Emphasis will be on addressing family identified priorities and the goals and objectives stated on the Individual Family Service Plan (IFSP) or Individual Educational Plan (IEP) using activity-based intervention, adapting materials, modifying environments and using assistive technology. (W, YR)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham
Can enroll if College is Education, Health, and Human Services

EDD 547 Tchg English as Second Lang 3 Credit Hours
This course examines current methodologies and theories for English as a second language learning and instruction. Emphasis will be placed on a standards-based curriculum for English language learners. The use of communicative activities and strategies for developing English language skills in the elementary grades will be emphasized. Official admission to and good standing in teacher certification program are required. (F).
Corequisite(s): EDD 548
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EDD 548 Pract: Tchng as Second Lang 1 Credit Hour
This course examines current methodologies and theories for English as a second language learning and instruction. Emphasis will be placed on a standards-based curriculum for English language learners. The use of communicative activities and strategies for developing English language skills in the elementary grades will be emphasized. Official admission to and good standing in teacher certification program are required. TB clearance, physician's statement of good health, criminal background clearance, and bloodborne pathogens/infectious diseases training are required. (F).
Corequisite(s): EDD 547
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EDD 552 Methods of Teaching Math K-8 3 Credit Hours
The course relates to the teaching of the mathematics curriculum in the elementary and middle school. The emphasis is on the development of teaching techniques that promote problem solving, reasoning, connections, communication, and concept and algorithmic development. Cooperative groups, manipulatives, technology, and meeting the special needs of every child in grades K-8. Required for all preservice elementary teachers. Official admission to and good standing in teacher education program required.
Prerequisite(s): MATH 387
Restriction(s):
Can enroll if Class is Graduate
EDD 554  Workship: Newspaper in Educ  2 Credit Hours
A course designed to familiarize elementary and secondary teachers
with the use of newspapers as a classroom resource. Workshop
participants will use the daily newspaper and other resource materials to
develop activities appropriate for meeting their own professional needs.
Emphasis will be on the enhancement of academic skills, practical life
skills and creative expression.
Restriction(s):
- Can enroll if Class is Graduate

EDD 560  Reading/Clinical Pract Int/Sem  3 Credit Hours
A supervised field experience in which students will work in a reading
program. In this internship students will acquire experience in selecting
students for the program, assessing students, working with students to
develop reading and writing skills, and in reporting functions. In addition,
a weekly seminar to explore issues related to reading programs will be
held. (S)
Prerequisite(s):
- EDA 519 and EDB 503 and EDC 560
Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if Degree is Master of Arts
- Can enroll if College is Education, Health, and Human Services
- Can enroll if Program is MA-Education

EDD 563  Teach Gifted Standard Classes  2 Credit Hours
This course introduces classroom teachers to the education of gifted
and talented students in the regular classroom. It is designed to help
teachers understand the social, emotional, and intellectual needs
of gifted students and to show them ways of effectively addressing
these needs along with those of the other students present. It will offer
specific proposals for structuring the learning environment as well as for
selecting appropriate levels and types of subject matter.
Restriction(s):
- Can enroll if Class is Graduate

EDD 565  Teach Math in Second Grades  2 to 3 Credit Hours
This course discusses: 1) the important parts of recent pedagogical
literature, 2) new instructional materials, methods, and curricular trends,
and 3) procedures useful in the construction of new units and in the
improvement of curricular units. Official admission to and good standing
in teacher certification program are required.
Prerequisite(s):
- MATH 412 and MATH 331
Corequisite(s):
Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if College is Education, Health, and Human Services

EDD 566  Practicum: Math Second School  1 Credit Hour
A required supervised field experience related to the teaching of
mathematics in grades 7-12. Involves 45 clock hours of work and
observation in a classroom setting. The practicum includes the
construction of classroom activities and lesson plans designed to
strengthen students’ skills in communication, problem solving, making
connections, and in the use of technology. Official admission to and good
standing in teacher certification program are required. Students cannot
receive credit for both EDD 451 and EDD 566.
Corequisite(s):
- EDD 565
Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if College is Education, Health, and Human Services

EDD 567  Practicum in Reading Instruct  1 Credit Hour
A required supervised field experience related to the teaching of reading
in the elementary and/or K-8. Involves a minimum of 45 clock hours of
work and observation in a supervised classroom setting. Techniques
learned in EDD 568 will be applied directly to increase the reading
competence of elementary school children. Must be elected concurrently
with EDD 568. TB test and criminal background check required.
Corequisite(s):
- EDD 568
Restriction(s):
- Can enroll if Class is Graduate

EDD 568  Teach Read/Lang Arts- Elem Grd  3 Credit Hours
Acquaints the student with theory, methods, materials, and research
related to the teaching of reading and other communications skills in the
elementary and/or K-8. Includes classroom activities designed to
strengthen skills in reading comprehension, word recognition, word
attack, and the related language arts. Official admission to and good
standing in the College of Education, Health, and Human Services
certification program are required.
Corequisite(s):
Restriction(s):
- Can enroll if Class is Graduate

EDD 569  Reading in the Content Areas  3 Credit Hours
Emphasis on developmental and remedial reading activities at the middle
grades and the secondary level; diagnosis, testing, and materials; reading
in the content subjects; study habits; independent reading activity;
exemplary programs. Some attention will be given to related problems
in the teaching of written composition. Official admission to and good
standing in the College of Education, Health, and Human Services
certification program are required. Students cannot receive credit for
both EDD 469 and EDD 569.
Restriction(s):
- Can enroll if Class is Graduate

EDD 571  Reading Instr: Models and Meth  2 to 3 Credit Hours
The impact of psycholinguistic research on reading instruction will
be examined especially as it relates to: reading comprehension, the
Teaching of phonetic skills, the teaching of reading/study skills in content
areas, and in testing. Various approaches to reading instruction will be
reviewed. Students electing this course for three credit hours will be
required to complete a reading tutorial suitable in meeting the needs of
an elementary student. Not open to students who have taken EDD 472,
EDD 532, or EDD 570. Official admission to and good standing in the
College of Education, Health, and Human Services certification program are required.
Restriction(s):

EDD 574  Environmental Education  2 to 3 Credit Hours
An analysis of environmental education at both the elementary and
secondary school level particularly stressing the environment as a
teaching resource. Community resources as they relate to environmental
education also are investigated.
Restriction(s):
- Can enroll if Class is Graduate
EDD 575 Integrating Science & Literacy 3 Credit Hours
Students will enhance their understanding of and ability to integrate multiple literacy skills into the science classroom. Students will create integrated classroom activities and lessons based on State of Michigan benchmarks in language arts and science. (F,W).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 580 Teach of Sci in the Second Grd 2 to 3 Credit Hours
A survey of the place of science in the secondary school curriculum, an analysis and evaluation of objectives, and a consideration of modern practices in teaching science. Official admission to and good standing in teacher certification program are required.
Corequisite(s):
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 581 Practicum in Science:Secnd Grd 1 Credit Hour
A supervised field experience related to the study of science in the secondary grades involving a minimum of 45 clock hours of observation and work spread over a semester in a school setting. Official admission to and good standing in teacher certification program are required.
Corequisite(s): EDD 580
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 582 Tch Sci in Secndary Grds II 3 Credit Hours
This course builds upon the concepts and skills developed in EDD 480 as students learn to become effective, reflective science teachers. Students will learn multiple strategies for effective lesson planning, teaching, and assessment in science. Science, technology, engineering and mathematics (STEM) and integration of reading/writing strategies will be emphasized throughout the course. Students cannot receive credit for both EDD 482 and EDD 582. EDD 582 will be distinguished from EDD 482 by additional readings and assignments for the enrolled students.
Prerequisite(s): EDD 480 and EDD 481
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Professional Development
Can enroll if College is Education, Health, and Human Services

EDD 583 Wkshp:Sci Teach Elem/Midd Schl 1 to 3 Credit Hours
Deals with existing and innovative science materials. Offered at various times emphasizing one or more areas from elementary and middle level science. Centers on a laboratory approach. May be elected twice for a total of six hours.
Restriction(s):
Can enroll if Class is Graduate

EDD 585 Teach Science in the Elem Grd 2 to 3 Credit Hours
Explores the objectives, methods, and instructional emphasis of elementary school science. Stresses concept development in several areas of elementary science. Provides opportunity for preparation of materials for classroom use. Official admission to and good standing in teacher certification program are required. Students cannot receive credit for both EDD 485 and EDD 585.

EDD 586 Environmental Interpretation 3 Credit Hours
Course deals with the interpretation of the environment, its characteristics, and its presentation to school groups as well as to the general public. Intended to acquaint students with a variety of skills and techniques necessary for interpreting the environment to others. Extensive use is made of the UM-D Environmental Study Area.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EDD 589 Practicum in Soc Stud:Sec Sch 1 Credit Hour
A supervised field experience related to the study of social studies in the secondary grades involving a minimum of 45 clock hours of observation and work spread over a semester in a school setting. Official admission to and good standing in teacher certification program are required.
Corequisite(s): EDD 590
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 590 Tch of the Soc Stud in Sec Sch 2 to 3 Credit Hours
This course examines theoretical and practical approaches to teaching social studies at the secondary level. Students explore, develop, and evaluate instructional methods. In light of professional standards, they consider diverse strategies for teaching and assessing middle and high school students.
Corequisite(s):
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 593 Simulation and Gaming 1 to 3 Credit Hours
This course focuses on simulation and gaming as approaches to learning which are fundamentally different from methods traditionally used in education, industry, business, and psychology. Students will have the opportunity to examine many different types of simulations and games to participate in selected ones. They will also be able to design one for use in their own area of interest.
Restriction(s):
Can enroll if Class is Graduate

EDD 594 Early Childhood Ed Internship 2 to 3 Credit Hours
Supervised observation and teaching in early childhood programs under the joint direction of university and school personnel. Open only to students in the M.A. in Education Program (Early Childhood Endorsement) who have been approved for the course by the program director. TB clearance, physician's statement of good health, and criminal background check required. Replaces EDD 494 as the graduate level Early Childhood Internship.
Prerequisite(s): EDD 536
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services
Can enroll if Major is Early Childhood
EDD 595  Wkshp: Social Studies Educ  2 to 3 Credit Hours
The workshop is planned to acquaint elementary and secondary teachers with specific trends and/or problems in social studies education. The theme of each workshop will vary according to the needs and interests of the teachers to reflect current interests in social studies education. Teachers will be directly involved in problem definition, literature review, research, and the collection and creation of strategies for classroom use. Students may repeat the course as topics vary up to a maximum of three hours of credit.
Restriction(s):
Can enroll if Class is Graduate

EDD 596  Second Lang Tchg: Sec Level  3 Credit Hours
An examination of current methodologies and techniques for instruction in foreign languages in grades 7-12. Emphasis will be placed on a standards-based curriculum with special attention given to the creation of learning scenarios. The use of communicative activities and the assessment of language skill areas will also be emphasized. Official admission to and good standing in teacher certification program are required.
Prerequisite(s): FREN 301 or GER 301 or SPAN 301
Corequisite(s):
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 597  Practicum in Second Lang Tchg  1 Credit Hour
A required supervised field experience related to the teaching of a foreign language in grades 7-12. Involves a minimum of 45 clock hours of work and observation spread over one semester in a supervised classroom setting. Methods and techniques learned in EDD 496 will be used to increase the second language proficiency of learners in grades 7-12. Official admission to and good standing in teacher certification program are required. TB clearance, physician’s statement of good health, criminal background clearance, and bloodborne pathogens/infectious diseases training are required.
Prerequisite(s): FREN 301 or GER 301 or SPAN 301
Corequisite(s): EDD 596
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 631  Junior High/Middle Sch Currclm  2 Credit Hours
Relates the junior high and middle school curriculum to the unique needs and characteristics of early adolescence. Gives attention to the scope, organization, and interrelationships of instructional programs as well as trends, experimentation, innovations and reports of research in this field. Designed for pre-service and in-service teachers.
Restriction(s):
Can enroll if Class is Graduate

EDD 650  Internship ECSE  1 to 3 Credit Hours
Supervised observation and teaching in Early Childhood Special Education setting under the joint direction of university and program personnel. Open only to graduate students in the Early Childhood Special Education Inclusion program who have been approved for the course by the program director. (YR).
Prerequisite(s): EDC 645 and EDD 546
Corequisite(s): EDD 651
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 651  Seminar in ECSE  1 Credit Hour
The seminar provides a theoretical foundation and support for the Internship in Early Childhood Special Education. Focus is on understanding the supports and barriers to implementing recommended practices in early childhood special education and early intervention as well as the changing roles of professionals working in early care and education settings. Skills in family-centered service delivery, collaborative consultation, problem-solving, teaming, advocacy and supervising paraprofessionals will be included. (YR).
Prerequisite(s): EDC 645 and EDD 546
Corequisite(s): EDD 650
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 650  Internship ECSE  1 to 3 Credit Hours
Supervised observation and teaching in Early Childhood Special Education setting under the joint direction of university and program personnel. Open only to graduate students in the Early Childhood Special Education Inclusion program who have been approved for the course by the program director. (YR).
Prerequisite(s): EDC 645 and EDD 546
Corequisite(s): EDD 651
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDD 680  Adv Science Meth: Secondary  3 Credit Hours
This course is designed for students interested in utilizing the research in science education at the secondary level. Students will study historical and philosophical perspectives that have shaped thinking and research related to science education. They will also be involved in the latest methods and techniques for science teaching and learning. Topics will include the use of inquiry methodologies, science education research, integration of science and other core subject areas, and current science education reform efforts. (F)
Restriction(s):
Can enroll if Class is Graduate

EDD 685  Adv Science Meth: Elem & MS  3 Credit Hours
This course is designed for students interested in utilizing the research in science education at the elementary and middle school levels. Students will study historical and philosophical perspectives that have shaped thinking and research related to science education. They will also be involved in the latest methods and techniques for science teaching and learning. Topics will include the use of inquiry methodologies, science education research, integration of science and other core subject areas, and current science education reform efforts. (F)
Restriction(s):
Can enroll if Class is Graduate
EDD 717  Sem in Curriculum and Practice  3 Credit Hours
This course will prepare doctoral candidates a framework from which to focus on in their particular field of study. During this course we will review major curriculum theories past and present within U.S. education and work toward applying these models in the practice of developing curriculum and reforming instructional practice. Emphasis is given to considering ways in which teachers and administrators might inquire into curriculum selection and teaching practice at the PK-12 or community college levels.
Restriction(s):
Can enroll if Level is Doctorate

EDD 719  Review of Research on Teaching  3 Credit Hours
The goal of this course is to review the historical and current literature for Research on Teaching. Students will develop an understanding of the critical issues and best practices for teaching and learning. They will also critically analyze the different methods of conducting research on teaching.
Prerequisite(s): EDD 717
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Educ K-Independent Study (EDK)

EDK 500  Intro to Research in Education  3 Credit Hours
An introduction for classroom teachers to the process of reviewing, evaluating, conducting, and disseminating educational research. Designed to help teachers evaluate research findings and their applications to classroom practice.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EDK 623  Quantitative Research Methods  3 Credit Hours
This course provides an introduction to quantitative methods for research in education. Topics explored include the logic of research design, using SPSS, graphical displays of both univariate and bivariate distributions, statistical inference and significance testing, contingency tables, t0tests, ANOVA, and regression. (YR)
Prerequisite(s): EDK 500

EDK 625  Qualitative Research Seminar  1 Credit Hour
This course introduces students to qualitative research in education. Using qualitative research in educational settings places the lived experiences of individuals and/or communities as the core of analysis and is grounded in a theoretical framework that relies on multiple perspectives of the same setting. During this course students will be introduced to the key tools used for qualitative research, through readings, discussions, and application. (YR)
Prerequisite(s): EDK 500

EDK 680  Individual Res in Education  1 to 3 Credit Hours
Requires the student to initiate and carry to completion a research project under the supervision of a staff member. May be elected more than once for a total of not more than three credits as approved by an advisor.
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

Educ F-Physical Education (EDF)

EDF 550  Hlth, Nutr, & PE/Clsrm Tchrs  2 Credit Hours
Instruction and participation in health, nutrition and physical education concepts and principles as they relate to elementary school curriculum. The six-dimensional model of wellness will be applied to meet legislative goals and objectives for the various grade levels. Required for elementary education majors.
Restriction(s):
Can enroll if Class is Graduate

EDF 555  Principles of Coaching  2 Credit Hours
Introduction in the basic principles and psychology of coaching all age groups, skill levels, and genders. Emphasis will be placed on many factors which relate to success in athletics/sports, the qualities and qualifications of coaches, and the administration of programs and organized practices. Students cannot receive credit for both EDF 455 and EDF 555. (YR)
Restriction(s):
Can enroll if Class is Graduate

Other Content

* An asterisk denotes that a course may be taken concurrently.
EDK 690  Internship/Directed Field Exp  1 to 3 Credit Hours
Allows the student to practice skills in the field in which the student has been trained. Develops greater competence in skill use. The staff member under whose direction the work is to be done, or a program coordinator, will make arrangements with the field supervisor who will furnish a report of the student’s work. May be elected more than once for a total of not more than three credits as approved by an advisor.
Restriction(s): Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Graduate
Can enroll if College is Education, Health, and Human Services

EDK 700  Intro to Research in Education  3 Credit Hours
An introduction for classroom teachers to the process of reviewing, evaluating, conducting, and disseminating educational research. Designed to help teachers evaluate research findings and their applications to classroom practice.
Restriction(s): Can enroll if Class is Specialist or Doctorate

EDK 810  Scholarly Writing  1 Credit Hour
This seminar is designed to enhance the capacity of doctoral students in education to write for academic and professional purposes. It guides students through the process of academic writing including: editing, developing their academic voice, following the APA style manual, writing for a specific purpose, developing audience awareness, and using feedback and editing to improve writing. The course will use a writers’ workshop model where students will share their writing and provide constructive feedback to each other.
Restriction(s): Can enroll if Class is Doctorate

EDK 823  Quantitative Research Methods  3 Credit Hours
This course provides an introduction to quantitative methods for research in education. Topics explored include the logic of research design, using SPSS, graphical displays of both univariate and bivariate distributions, statistical inference and significance testing, contingency tables, t-tests, ANOVA, and regression.
Prerequisite(s): EDK 500 or EDK 700
Restriction(s): Can enroll if Class is Specialist or Doctorate
Can enroll if Level is Specialist or Doctorate
Can enroll if Degree is Doctor of Education

EDK 825  Qualitative Research Seminar  3 Credit Hours
This course introduces students to qualitative research in education. Using qualitative research in educational settings places the lived experiences of individuals and/or communities as the core of analysis and is grounded in a theoretical framework that relies on multiple perspectives of the same setting. During this course students will be introduced to the key tools used for qualitative research, through readings, discussions, and application.
Prerequisite(s): EDK 500 or EDK 700
Restriction(s): Can enroll if Degree is Doctor of Education, Education Specialist

EDK 850  Resrch Dsgn & Proposal Dvlpmt  3 Credit Hours
This course will provide an introduction and overview of proposal development in preparation for writing a dissertation or applied studies project. It addresses basic proposal development stages faced by pre-doctoral candidates. The course provides an introduction and guidance to the appropriate selection of research design. This is a computer assisted course.
Prerequisite(s): EDK 823 and EDK 825
Restriction(s): Can enroll if Class is Specialist or Doctorate
Can enroll if Level is Doctorate
Can enroll if Degree is Doctor of Education
Can enroll if College is Education, Health, and Human Services

EDK 880  Individual Res in Education  1 to 3 Credit Hours
Requires the student to initiate and carry to completion a research project under the supervision of a staff member. May be elected more than once for a total of not more than three credits as approved by an advisor.
Restriction(s): Can enroll if Class is Specialist or Doctorate

EDK 890  Intern/Direct Field Experience  1 to 3 Credit Hours
Allows the student to practice skills in the field in which the student has been trained. Develops greater competence in skill use. The staff member under whose direction the work is to be done, or a program coordinator, will make arrangements with the field supervisor who will furnish a report of the student’s work. May be elected more than once for a total of not more than three credits as approved by an advisor.
Restriction(s): Can enroll if Class is Specialist or Doctorate

EDK 990  Ed.D. Prelim Exam/Proposal  3 to 6 Credit Hours
EDK 990 is for students planning to complete their preliminary examinations and submit and defend their dissertations or applied studies project proposals. The preliminary examination includes two parts that need to be completed in a one-week period. Students will write a paper that demonstrates the depth of their knowledge in the four concentration areas of the doctoral program and their ability to apply that knowledge in a thoughtful analysis of a case study selected by their Doctoral Committee. Students will write a paper that demonstrates the depth and breadth of their knowledge of the theoretical issues and empirical research related to their area of concentration and the relationship between their area of concentration and the broader field of education. Their Doctoral Committee will establish the goals and guidelines for the paper. To successfully complete the proposal for a dissertation, students will submit and orally defend a paper of sufficient length, depth, and complexity that demonstrates their ability to identify a significant and worthwhile problem, select a method or methods of research, apply these methods properly and present the entire effort in writing that is clear and cogent. To successfully complete the proposal for an applied studies project, students will submit and orally defend a paper of sufficient length and complexity that demonstrates their ability to identify a significant and worthwhile problem, use appropriate theoretical and empirical studies to develop a response to the problem and assess the effectiveness of the response, and present the entire effort in writing that is clear and cogent.
Restriction(s): Can enroll if Class is Doctorate
Can enroll if Level is Doctorate
Can enroll if Degree is Doctor of Education
EDK 995  Ed.D. Dissertation/Appl Study  3 to 9 Credit Hours
Course for dissertation or applied studies work for students who have
been approved for candidacy.
Prerequisite(s): EDK 990
Restriction(s):
Can enroll if Class is Doctorate
Can enroll if Level is Doctorate
Can enroll if Degree is Doctor of Education

Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Educ N-Special Education (EDN)

EDN 501  Strategies for LD  3 Credit Hours
Content includes strategies for teaching students with learning
disabilities in special and regular education classes. Course addresses
diagnostic-prescriptive teaching, direct instruction, and specific
strategies and materials addressing each academic area. The
individualized education program (IEP), development of goals and
objectives, linking assessment and instruction, inclusion, and generality
of behavior change will also be included.
Prerequisite(s): EDC 501
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDN 502  Social/Vocational Transitions  3 Credit Hours
Course includes strategies that teach age-appropriate social skills to
elementary students with learning disabilities. Topics include interactive
skills, self-management skills, self-concept, attitude, communication
skills particularly pragmatics, assessing social skills, and differential
responding in a variety of social settings found in the school, home, and
community.
Prerequisite(s): EDN 520 EDC 501
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDN 503  Assessment of the Learner  3 Credit Hours
Formal and informal assessment strategies used in the identification
and service of students with handicaps are described. Technical
and operations aspects of standardized testing, curriculum-based
assessment, and informal strategies are described.
Prerequisite(s): EDC 501
Corequisite(s):
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad
Certification only or Graduate
Can enroll if College is Education, Health, and Human Services

EDN 504  Assessment Practicum  1 Credit Hour
Clinical experiences with formal and informal assessment strategies
currently used by special educators to identify and program for
students with handicaps. Activities include administration, scoring,
and interpretation of norm- and criterion-referenced tests, curriculum-
based assessments, and informal assessment strategies. Deriving goals,
objectives, activities, and strategies from assessment data are also
included.
Prerequisite(s): EDC 501
Corequisite(s):
Restriction(s):
Can enroll if Class is Undergrad Certification only or Post-baccalaureate
Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

Educ M-Community & Bilingual
(EDM)

EDM 505  TESOL Strategies  3 Credit Hours
This course examines a variety of instructional approaches to teaching
English to speakers of other languages (TESOL). These approaches
will be discussed in light of underlying language learning theories.
Instructional materials representing various approaches to TESOL
will be examined. Students will also have the opportunity to construct
instructional materials for use in TESOL.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate
Cert only or Graduate

Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
EDN 505 Teaching Students with ADD 2 to 3 Credit Hours
Identification of the behavioral characteristics and instructional needs of students with attention deficit disorders and/or hyperactivity will be discussed. Conducting and interpreting assessment, promoting academic skill gains, sustained attention, task involvement, self-management and functional social skills, and managing hyperactive and hypoactive behaviors will be addressed. Strategies to support and promote family involvement and self-esteem will be described.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDN 506 Collaboration in the Classroom 3 Credit Hours
Techniques for enhancing collaboration between special and regular classroom teachers of mainstreamed exceptional and low-achieving learners at all levels. Included are essential skills for managing and monitoring the learning process and maintaining collaborative partnerships.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Graduate
Can enroll if College is Education, Health, and Human Services

EDN 507 Ed of the Emotionally Impaired 2 Credit Hours
Explores educational strategies for the emotionally disturbed and behaviorally disordered. Emphasis is given to etiological factors and prescriptive approaches to teaching. The role of the teacher as a consultant, a modifier of behavior, and a learning strategist is explored.
Prerequisite(s): EDC 561
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDN 508 Internship Seminar - LD 1 Credit Hour
Seminar will focus on the discussion, development, and evaluation of Individualized Educational Programs, Individualized Transition Plans, and Behavior Intervention Plans for students with learning disabilities at a variety of internship sites. Topics will include academic and behavior assessment and strategies, curriculum, child study teaming, service delivery options and inclusion strategies.
Prerequisite(s): EDC 501 and EDN 501 and EDN 503 and EDN 504

EDN 520 Intro to Emotional Impairments 3 Credit Hours
Identification of the behavioral characteristics and instructional needs of children with emotional impairments/behavior disorders will be discussed. Causes of emotional impairments and environmental influences on behavior will also be discussed. Strategies for identification, assessment, and interpreting such instruments will be addressed. Finally, instructional strategies for students with emotional impairments will be described and practiced through classroom activities. (YR).
Corequisite(s):
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDN 521 Practicum at Psych Facility 1 Credit Hour
Experience in a clinical setting with emotionally impaired individuals, for no less than 45 clock hours. Activities include working with cooperating teacher on tasks such as individual tutoring, data collection, informal assessment, and program implementation and evaluation. Also included will be the development of goals and objectives relevant for emotionally impaired students. (YR).
Corequisite(s):
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate

EDN 522 Emotional Impairments Intmshp 3 Credit Hours
Field experience with elementary/secondary students with emotional impairments in classroom setting. Experiences include delivery of direct instruction, observations, tutoring, small and large group instruction, curriculum development, program development, and implementation and participation in the IEP process. Collaboration with regular classroom teachers, and other activities under the on-site supervision of an EI certified teacher and an EI-certified university field supervisor. Internship also includes weekly seminar. This course has EDN 520, EDN 525, EDN 526, EDN 523 with a "B" or better as prerequisites. (YR).
Prerequisite(s): EDN 520 and EDN 523 and EDN 525 and EDN 526

EDN 523 Strat: Emotional Impairments 3 Credit Hours
Course content includes strategies for teaching students with emotional impairments, including instruction on reading and mathematics. Course also includes strategies to deal with hyperactive behavior, aggressive behavior, socially withdrawn behavior, and delinquency. Strategies for effective teaching, and the development of instructional materials and learning environments for students with emotional impairments is included. The Individualized Educational Program, development of goals and objectives, linking assessment with instruction, and integrating students with emotional impairments into the regular classroom will also be covered. EDN 520 or EDC 501 is a prerequisite. (YR).
Prerequisite(s): EDN 520 or EDC 501

EDN 524 Couns Fam of Studts Emo Impair 2 Credit Hours
Course content focuses on preparing teachers to work with parents and families, to meet the academic, emotional, social and behavioral needs of students with emotional impairments. Issues concerning counseling families and students in educational settings will be discussed. Strategies for individual and group counseling will also be addressed and practiced through classroom activities. (YR).
Prerequisite(s): EDN 520

EDN 525 Eco-Behavioral Assessment 2 or 3 Credit Hours
Formal and informal assessment strategies used in identifying and serving students with emotional impairments are described. Assessment strategies include eco-behavioral assessment, functional analyses, naturalistic observation techniques, norm-referenced and criterion referenced tests, interviewing, achievement tests, and curriculum based assessment. Technical aspects of assessment, interpretation of data, and diagnostic strategies are also addressed, as well as using assessment instruments to facilitate more effective teaching for students with emotional impairments. To be taken concurrently with EDN 526. (YR).
Prerequisite(s): EDN 520 or EDC 501
Corequisite(s):
Restriction(s):
Can enroll if Class is Graduate

EDN 526 Eco-Behav Assessment Practicum 1 Credit Hour
Clinical experiences with formal and informal assessment strategies currently used by special educators to identify and program for students with emotional impairments. Activities include practicing observation techniques, completing and analyzing eco-behavioral assessments and functional analyses. Also included are administration, scoring, and interpretation of norm-referenced and criterion referenced tests, curriculum based assessments, achievement tests, rating scales and checklists, and informal assessment strategies. To be taken concurrently with EDN 525. (YR).
Prerequisite(s): EDN 520
Corequisite(s): EDN 525
EDN 527  Inclusion: Multisens/Direct Inst  2 to 3 Credit Hours
Course addresses developing, implementing, and evaluating teaching strategies and materials that incorporate principles of direct instruction and multi-sensory activities that promote inclusion of students with special needs in general education settings, increase all students’ academic achievement, and improve social interaction among students from a wide variety of social, economic, and cultural backgrounds. (F,W,S).
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate
EDN 580  Mentally Impaired Child  2 to 3 Credit Hours
A course specially designed for regular classroom teachers to better equip them for effectively teaching children with mental impairments.
Restriction(s):
Can enroll if Class is Graduate
EDN 701  Strategies for LD  3 Credit Hours
Content includes strategies for teaching students with learning disabilities in special and regular education classes. Course addresses diagnostic-prescriptive teaching, direct instruction, and specific strategies and materials addressing each academic area. The individualized education program (IEP), development of goals and objectives, linking assessment and instruction, inclusion, and generality of behavior change will also be included.
Prerequisite(s): EDC 501
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDN 702  Social/Vocational Transitions  3 Credit Hours
Course includes strategies that teach age-appropriate social skills to elementary students with learning disabilities. Topics include interactive skills, self-management skills, self-concept, attitude, communication skills particularly pragmatics, assessing social skills, and differential responding in a variety of social settings found in the school, home, and community.
Prerequisite(s): EDC 501 or EDN 520
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDN 703  Assessment of the Learner  3 Credit Hours
Formal and informal assessment strategies used in the identification and service of students with handicaps are described. Technical and operations aspects of standardized testing, curriculum-based assessment, and informal strategies are described.
Prerequisite(s): EDC 501
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDN 706  Collaboration in the Classroom  3 Credit Hours
Techniques for enhancing collaboration between special and regular classroom teachers of mainstreamed exceptional and low-achieving learners at all levels. Included are essential skills for managing and monitoring the learning process and maintaining collaborative partnerships.
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDN 720  Intro to Emotional Impairments  3 Credit Hours
Identification of the behavioral characteristics and instructional needs of children with emotional impairments/behavior disorders will be discussed. Causes of emotional impairments and environmental influences on behavior will also be discussed. Strategies for identification, assessment, and interpreting such instruments will be addressed. Finally, instructional strategies for students with emotional impairments will be described and practiced through classroom activities. (YR).
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDN 723  Strat: Emotional Impairments  3 Credit Hours
Course content includes strategies for teaching students with emotional impairments, including instruction on reading and mathematics. Course also includes strategies to deal with hyperactive behavior, aggressive behavior, socially withdrawn behavior, and delinquency. Strategies for effective teaching, and the development of instructional materials and learning environments for students with emotional impairments are included. The individualized Educational Program, development of goals and objectives, linking assessment with instruction, and integrating students with emotional impairments into the regular classroom will also be covered. EDN 520 or EDC 501 is a prerequisite. (YR).
Prerequisite(s): EDC 501 or EDN 520
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDN 725  Eco-Behavioral Assessment  2 to 3 Credit Hours
Formal and informal assessment strategies used in identifying and serving students with emotional impairments are described. Assessment strategies include eco-behavioral assessment, functional analyses, naturalistic observation techniques, norm-referenced and criterion referenced tests, interviewing, achievement tests, and curriculum based assessment. Technical aspects of assessment, interpretation of data, and diagnostic strategies are also addressed, as well as using assessment instruments to facilitate more effective teaching for students with emotional impairments. To be taken concurrently with EDN 526. (YR).
Prerequisite(s): EDC 501 or EDN 520
Restriction(s):
Can enroll if Class is Specialist or Doctorate
Other Content
* An asterisk denotes that a course may be taken concurrently.
Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
* An asterisk denotes that a course may be taken concurrently.
Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
**Educ T-Education Technology (EDT)**

**EDT 500**  
Instr Media Meth and Matrls  
1 to 2 Credit Hours  
Explores the technology, the production, and the effective use of audiovisual media instructional purposes in a variety of settings.  
**Restriction(s):**  
Can enroll if Level is Graduate

**EDT 501**  
Rsrch, Tmds&Iss in Ed Tchnlg  
3 Credit Hours  
This course is designed to acquaint the students with research and issues facing education in the digital era. This course will look at the wide range of developments in technology and investigate the trends that are impacting the field of educational technology. Students explore and analyze key issues related to technology in the classroom of the twenty-first century. (F)  
**Restriction(s):**  
Can enroll if Class is Graduate  
Can enroll if College is Education, Health, and Human Services

**EDT 502**  
Survey of Educ Tech Tools  
3 Credit Hours  
This course provides students with a general overview of relevant educational software and hardware technologies as well as web-based digital resources that can be used in instructional settings. The students will learn how to identify, select and integrate a broad range of technologies into different learning environments. Students will also create several technology-based instructional products using various tools, applications, and authoring environments.  
**Restriction(s):**  
Can enroll if Class is Graduate  
Can enroll if College is Education, Health, and Human Services

**EDT 510**  
Teaching with Technology  
3 Credit Hours  
Introduces students to the management and integration of technology in education. Students experience and become familiar with technology-based teaching and learning materials; learn methodologies for using technology in specific teaching situations including audiovisual and media methods; develop skills in effectively evaluating educational software; explore how technology can be used as a problem-solving tool within the classroom environment; and become familiar with application programs, telecommunications and multimedia. (F, W, S).  
**Prerequisite(s):** EDT 501 and EDT 502 and EDT 514  
**Restriction(s):**  
Can enroll if Class is Graduate

**EDT 511**  
Design Tech-Based Learn Solutn  
3 Credit Hours  
EDT 511 provides students with the opportunity to design and develop technology-based learning solutions for real-world instructional problems. Students will identify an instructional problem, collect data to assess relevant needs of an authentic population of learners and work collaboratively to create learning solutions for face-to-face, blended and/or online environments. Students will also become proficient in the operation of various pieces of hardware and software and develop skills for evaluating and integrating technology into the different learning environments.  
**Restriction(s):**  
Can enroll if Class is Graduate

**EDT 512**  
Human Performance Improvement  
3 Credit Hours  
This course addresses organizational and human behaviors that affect performance. Causes of performance deficits will be examined and possible solutions linking business goals to interventions will be considered.  
**Restriction(s):**  
Can enroll if Class is Post-baccalaureate Cert only or Undergrad Certification only or Junior or Senior or Graduate

**EDT 513**  
Analyzing Human Performance  
3 Credit Hours  
Students will practice research design, sampling, surveys, and statistical analysis in the analysis of performance problems in local companies. Different modes of performance analysis will be demonstrated. (F, W).  
**Prerequisite(s):** EDT 512  
**Restriction(s):**  
Can enroll if Class is Graduate

**EDT 514**  
Application of Instrl Design  
3 Credit Hours  
The course provides students with necessary skills to apply Technological Pedagogical Content Knowledge (TPCK) instructional design process in a specific subject area.  
**Prerequisite(s):** EDT 501 and EDT 502  
**Restriction(s):**  
Can enroll if Class is Undergrad Certification only or Post-baccalaureate Cert only or Graduate  
Can enroll if College is Education, Health, and Human Services

**EDT 516**  
Application of Distance Learn  
3 Credit Hours  
Students will use cameras, microphones, VCRs, computers, and other equipment to manage video conferences and other forms of distance education. Students will research distance learners' satisfaction and retention of distance learning applications.  
**Prerequisite(s):** EDT 505 and EDT 512 and EDT 514  
**Restriction(s):**  
Can enroll if Level is Graduate

**EDT 517**  
Evaluating PI Interventions  
3 Credit Hours  
Students will learn several models for evaluating performance interventions. Concepts of validity, reliability, item analysis and culture bias will be included.  
**Prerequisite(s):** EDT 512  
**Restriction(s):**  
Can enroll if Level is Graduate

**EDT 519**  
Select & Design Interventions  
3 Credit Hours  
Students will learn appropriate interventions for remediying typical performance problems. Students will also learn to manage and monitor the implementation process. (F, W).  
**Prerequisite(s):** EDT 512 and EDT 513 and EDT 517  
**Restriction(s):**  
Can enroll if Level is Graduate

**EDT 520**  
Intro to Teaching/Learn Online  
3 Credit Hours  
This course will introduce students to best practices in the design, creation and implementation of instructional materials in an online environment. Students will create and implement several instructional activities and assessments in blended, hybrid and online environments.  
**Corequisite(s):**  
**Restriction(s):**  
Can enroll if Class is Graduate
EDT 521  Transitioning to HPI  3 Credit Hours
Students will learn tools for analyzing organizational readiness for change. Students will plan an intervention cycle including preparing for change, designing the intervention, and comparing anticipated and actual results.
Prerequisite(s): EDT 512 and EDT 513 and EDT 517 and EDT 519
Restriction(s):
Can enroll if Level is Graduate

EDT 522  Educating the Digital Learner  3 Credit Hours
This course builds upon knowledge learned in EDT 520. Students are introduced to Universal Design for Learning (UDL) theory and how to apply it to learning activities in the blended, hybrid and online environment. Emphasis is placed on learning how to make accommodations for students in the online environment as well. Students will also learn to critically assess different approaches to online instruction.
Corequisite(s):
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDT 530  Assistive Technology  3 Credit Hours
This course is designed as an introductory course in assistive technology (AT) including the history, relevant legislation, and development of assistive technology. Students will be introduced to key AT categories by function including high tech and low tech assistive hardware, software and mobile devices to increase learning opportunities for individuals with disabilities.

EDT 531  Lead. & Prof. devel in Ed Tech  3 Credit Hours
This field-based course provides students with necessary skills to design and practice methods and strategies for providing effective professional development programs for teachers and to demonstrate leadership in technology learning practices and techniques in K-12 environment. This course is designed as a capstone course and should be taken in the final semester of the program.
Prerequisite(s): EDT 510 and EDT 501 and EDT 502 and EDT 514 and EDT 520 and EDT 522
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services

EDT 562  EDT Internship/Seminar  3 Credit Hours
A supervised field experience in which students will work in a K-12 technology program for 120 clock hours. In this internship students will serve as instructional staff, developing knowledge of and experience in managing resources, assessing students, working with students to develop technology literacy, and assisting another teacher in integrating technology into the classroom. In addition, a weekly seminar to explore issues related to K-12 technology programs will be held. (F, W).
Restriction(s):
Can enroll if Class is Graduate

EDT 580  Appl of Tech for Organ Admin  2 or 3 Credit Hours
FULL TITLE: Applications of Technology for Organizational Administrators. This course will focus on the role of organizational administrators in the applications of technology within and organization, including policy development, personnel management, financial planning and budgeting, program planning and evaluation, training, and strategic planning.
Restriction(s):
Can enroll if Level is Rackham or Professional Development or Graduate

EDT 585  Technology for Administrators  3 Credit Hours
This course will focus on the role of educational administrators in the applications of technology within a school, including policy development, personnel/student management, financial planning and budgeting, curricular planning and evaluation and professional development.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Cannot enroll if College is Engineering and Computer Science

EDT 702  Survey of Educ Tech Tools  3 Credit Hours
This course provides students with a general overview of relevant educational software and hardware technologies as well as web-based digital resources that can be used in instructional settings. The students will learn how to identify, select and integrate a broad range of technologies into different learning environments. Students will also create several technology-based instructional products using various tools, applications, and authoring environments.
Restriction(s):
Can enroll if Level is Doctorate or Specialist
Can enroll if College is Education, Health, and Human Services

EDT 714  Application of Instrl Design  3 Credit Hours
The course provides students with necessary skills to apply Technological Pedagogical Content Knowledge (TPCK) instructional design process in a specific subject area.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDT 720  Intro to Teaching/Learn Online  3 Credit Hours
This course will introduce students to best practices in the design, creation and implementation of instructional materials in an online environment. Students will create and implement several instructional activities and assessments in blended, hybrid and online environments.
Prerequisite(s): EDT 505 or EDT 514
Corequisite(s):
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDT 722  Educating the Digital Learner  3 Credit Hours
This course builds upon knowledge learned in EDT 720. Students are introduced to Universal Design for Learning (UDL) theory and how to apply it to learning activities in the blended, hybrid and online environment. Emphasis is placed on learning how to make accommodations for students in the online environment as well. Students will also learn to critically assess different approaches to online instruction.
Prerequisite(s): EDT 720
Corequisite(s):
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EDT 731  Lead. & Prof. devel in Ed Tech  3 Credit Hours
This field-based course provides students with necessary skills to design and practice methods and strategies for providing effective professional development programs for teachers and to demonstrate leadership in technology learning practices and techniques in K-12 environment. This course is designed as a capstone course and should be taken in the final semester of the program.
Prerequisite(s): EDT 510
Restriction(s):
Can enroll if Class is Specialist or Doctorate
EDT 785  Technology for Administrators  3 Credit Hours
This course will focus on the role of educational administrators in the applications of technology within a school, including policy development, personnel/student management, financial planning and budgeting, curricular planning and evaluation and professional development.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

Other Content
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Education Mathematics (EDMA)

EDMA 511  Lrng & Tchg Middle Grade Math  3 Credit Hours
This course addresses issues central to teaching and learning mathematics in middle grades; building learning communities, how students learn mathematics, use of worthwhile mathematical tasks, instructional modes, technology options, assessment to inform instruction, and professional perspectives. (Y).
Restriction(s):
Can enroll if Level is Graduate or Rackham or Professional Development
Can enroll if College is Education, Health, and Human Services

EDMA 512  Comm and Assmt in Math Lrng  3 Credit Hours
Problems and strategies for making effective the reading, symbolizing, graphing, diagramming, explaining, and writing of mathematical concepts and solutions: multiple uses and forms of assessment. (W)
Restriction(s):
Can enroll if Class is Specialist or Graduate
Can enroll if College is Education, Health, and Human Services
Can enroll if Major is Education

EDMA 525  Curric Devl & Rsch in Math Ed  3 Credit Hours
Curriculum Development and Research in Mathematics Education is a capstone course for leadership in mathematics education. It addresses recent research in mathematics education and the design, implementation, and evaluation of research-based curriculum development; action research methods; and applications.
Restriction(s):
Can enroll if Class is Graduate

EDMA 712  Comm and Assmt in Math Lrng  3 Credit Hours
Problems and strategies for making effective the reading, symbolizing, graphing, diagramming, explaining, and writing of mathematical concepts and solutions: multiple uses and forms of assessment. (W)
Prerequisite(s): (MATH 442 or MATH 542) and (MATH 443 or MATH 543)
Restriction(s):
Can enroll if Class is Graduate
Cannot enroll if Class is Doctorate
Cannot enroll if Major is Education

EDMA 721  Leadership in Mathematics Educ  3 Credit Hours
This course focuses on leadership concerns in mathematics education at the middle grades level. Topics may include school reform; staff development; program review; communicating with the community; new teacher induction; proposal writing. Open only to graduate students or by permission of the instructor. (Y).
Prerequisite(s): EDMA 512
Restriction(s):
Can enroll if Class is Specialist or Doctorate
Can enroll if College is Education, Health, and Human Services

EDMA 725  Curric Devl & Rsch in Math Ed  3 Credit Hours
Curriculum Development and Research in Mathematics Education is a capstone course for leadership in mathematics education. It addresses recent research in mathematics education and the design, implementation, and evaluation of research-based curriculum development; action research methods; and applications.
Prerequisite(s): EDMA 512 and EDMA 521
Restriction(s):
Can enroll if Class is Specialist or Doctorate
An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally.

ECE 500  Intro to Multimedia Sys  3 Credit Hours
This course is designed to provide a broad overview of the engineering, art, and business of developing multimedia systems. In terms of technical and engineering issues, students will learn basic data analysis techniques and computer programming tools. In terms of art and media, students will learn the basics of human perception, communication, and aesthetics. In terms of business, students will learn how to identify customer needs and think like an entrepreneur. By learning and understanding the working vocabulary of each of these three fields, students will be able to contribute creative and effective multimedia-based solutions to interesting real-world problems. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate

ECE 501  Analytic and Comp Math  3 Credit Hours
This course covers selected topics in applied mathematics useful in science and engineering fields, including: solution of linear equations, polynomial interpolation and approximation, solution of nonlinear equations, roots of polynomials, resultants, approximation by orthogonal functions (includes Fourier series), ordinary differential equations, optimization, calculus of variations, probability and stochastic processes, computational geometry, and differential geometry. In addition to providing students with necessary mathematical knowledge for their future course study and research projects, students will be required to program in MATLAB and/or other languages to gain and improve programming ability. Students in RE program must take this course in the first year. This course cannot be taken with ECE 500. Three lecture hours per week. (F)

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 502  Electromag Theory & Simul  3 Credit Hours
The course will cover basic devices and applications in Electromagnetic waves. The course will use examples of electromagnetic devices that operate at low frequency, (e.g., coils and motors), and others that operate at high frequency (e.g., Optical fiber, Laser, Imaging Sensor, LEDs, Solar cells and Antenna.) The course will develop fundamental understandings for the behavior of these devices. Three lecture hours per week.

Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if Major is Computer Engineering, Software Engineering, Electrical Engineering, Industrial & Systems Engin, Mechanical Engineering

ECE 505  Intro to Embedded Systems  3 Credit Hours
Introduction to modern digital computer logic. Numbers and coding systems; Boolean algebra with application to logic systems; examples of digital logic circuits; simple machine language programming and Assembly and C/C++ programming language; microprocessors programming (both assembly and C/C+) for input/output, interrupts, and system design. (May not be available to students with EE or CE degrees)
Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 507  Intro to Multimedia Sys  3 Credit Hours
This course is designed to provide a broad overview of the engineering, art, and business of developing multimedia systems. In terms of technical and engineering issues, students will learn basic data analysis techniques and computer programming tools. In terms of art and media, students will learn the basics of human perception, communication, and aesthetics. In terms of business, students will learn how to identify customer needs and think like an entrepreneur. By learning and understanding the working vocabulary of each of these three fields, students will be able to contribute creative and effective multimedia-based solutions to interesting real-world problems. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate

ECE 510  Vehicle Electronics I  3 Credit Hours
This course discusses the principles of electrical engineering and applications of electrical and electronic systems in automobiles, including resistive, inductive, and capacitive circuit analysis, semiconductor diodes, junction transistors, FETS, rectifiers, and power supplies, small signal amplifiers, biasing considerations, gain-bandwidth limitations, circuit models. Some automotive EE applications are used for case study. Three lecture hours per week. (Not open to students with EE degree.)

Restriction(s):
Can enroll if Class is Graduate
Cannot enroll if Major is Computer Engineering, Electrical Engineering

ECE 512  Analog Filter Design  3 Credit Hours
This course addresses the analysis and design of continuous time (analog) and switched-capacitor filters. Students will analyze and design filters. Effect of tolerances of circuit elements on the performance of the circuit behavior will be analyzed. Students will use simulation tools to design filters and verify circuit performance. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 513  Computer-Aided Network Design  3 Credit Hours
Numerical methods required for circuit analysis and design using digital computers are investigated. These techniques include matrix analysis of linear systems; network graphic theory, tolerance analysis, transient analysis, numerical integration, nonlinear circuit analysis, network optimization, and device modeling. Practical examples are given requiring the construction of computer subroutines and use of general analysis programs such as ECAP and CIRAN. Three lecture hours.

Prerequisite(s): ECE 410

Restriction(s):
Can enroll if Class is Graduate
ECE 514  VLSI Design  3 Credit Hours
Topics relevant to the design and analysis of VLSI circuits are investigated. These include an introduction to CMOS circuits, their characterization and performance estimation. Logic design and testing of VLSI circuits. Analysis of layout and the design of subsystems. VHDL and commercial CAD packages for VLSI design.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 515  Vehicle Electronics II  3 Credit Hours
This course discusses advanced topics in electronics with an emphasis on vehicle applications. It will include ignition systems and controls, amplifiers, frequency characteristics of electronic circuits, feedback in electronic systems and stability, power electronics and motor drive controls (DC/DC and DC/AC converters) and EMC issues. Selected examples include applications such as voltage regulators and battery chargers. Three lecture hours per week.
Prerequisite(s): AENG 510

ECE 516  Electronic Materials & IC Proc  3 Credit Hours
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 517  Adv Pwr Electrnscs&Motor Drvs  3 Credit Hours
This is an advanced course on power electronics and electric drives. Example topics include DC, induction, synchronous and reluctance drives; industrial and residential application of power electronics; practical aspects of design of power electronics devices including heat sink and magnetic components designs. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 518  Mat Selecf for Commercial Prod  3 Credit Hours
Impact of modern materials on commercial product performance; representative illustrations from product areas such as automotive vehicles, commercial aircraft, recreational equipment, and electronic products.
Restriction(s):
Can enroll if Class is Graduate

ECE 519  Adv Topics in EMC  3 Credit Hours
This course covers the EMC requirements and EMC test methods for large systems. Examples involving various types of applications (automotive, communications, computers) will be discussed. Discussion of design practices used in large installation, including component segregation, cable routing, connectors, grounding, shielding, common impedance coupling, ground planes, screening and suppression. Classification of electromagnetic environments will also be discussed. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate or Doctorate
Can enroll if Level is Doctorate or Rackham or Graduate
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 524  Interactive Media  3 Credit Hours
This course will provide an introduction to computer and human interface and AI, user-interface design from design principles and cognitive perspectives. The course covers such topics innovative multimedia interfaces, design ethics, psychological principles, cognitive models, interaction principles, requirements analysis, project management, I/O devices, standards and styles guides, and visual design principles. This is a project-based class. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

ECE 525  Multimedia Data Stor & Retr  3 Credit Hours
This course will cover the fundamental concepts and techniques used in multimedia data, storage and retrieval including storage and retrieval images, videos, audio and text documents. Selected multimedia applications will be discussed and students will be required to work on a project related to multimedia applications such as advertising and marketing, education and training, entertainment, medicine, surveillance, wearable computing, biometrics, and remote sensing. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Computer & Information Science, Electrical Engineering, Software Engineering

ECE 5251  MM Design Tools I  3 Credit Hours
This course will introduce students to design tools for multimedia systems. Basic concepts, algorithms, and standards will be covered for systems that process digital images, vector graphics, and text. Models and relevant parameters of display technologies (video and printer) will be discussed. Part of the coursework involves a project concerning the analysis and design of a multimedia-based system. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer & Information Science, Computer Engineering, Electrical Engineering, Software Engineering

ECE 5252  MM Design Tools II  3 Credit Hours
This course will introduce students to multimedia design tools for dynamic media (video and audio). Basic concepts of digital video will be reviewed, such as resolution and compression standards. Algorithms and methods for video and audio processing and effects will be reviewed. Part of the coursework involves a project concerning the analysis and design of a multimedia-based system. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer & Information Science, Computer Engineering, Electrical Engineering, Software Engineering

ECE 525  Multimedia Comm Sys  3 Credit Hours
Object of this course is to introduce current techniques in multimedia communications. This course will cover in-depth study of existing multimedia compression standards such as, MPEG, MJEG, JPEG2000, etc. The course will introduce the basic issues in multimedia communications and networking and is designed to give the student hands-on experience in various aspects of multimedia communications through the various assignments and projects.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering, Software Engineering, Computer & Information Science
ECE 527  Multimedia Secur & Forensics  3 Credit Hours
Object of this course is to introduce current techniques information security in general and multimedia security in particular. This course will cover existing information hiding techniques such as digital watermarking, steganography, and fingerprinting. The course will also cover basics of cryptography and coding theory. This course will cover the basic issues in multimedia security and forensics and is designed to give the student hands-on experience in various aspects of information security and forensic analysis through the various assignments and projects. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Software Engineering, Computer & Information Science, Electrical Engineering

ECE 528  Cloud Computing  3 Credit Hours
Cloud computing represents the emerging Internet-based services/platforms with elastic and scalable computation powers operating at costs associated with service. Topics of the course include advanced web technologies, distributed computing models and technologies, software as a service (SaaS), virtualization, pallelization, security/privacy and the advance in cloud computing. Course work includes building up a SaaS project. Students cannot take both ECE 428 and ECE 528 for degree credit. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham
Can enroll if Major is Industrial & Systems Engr, Software Engineering, Computer Engineering, Electrical Engineering, Computer & Information Science, Mechanical Engineering

ECE 529  Intro to Computer Music  3 Credit Hours
This course will introduce students to methods and technologies of computer music. The basics of digital audio will be covered, including sampling, quantization, and compression standards. Various analysis tools will be covered, including the Fourier transform and windowing techniques. Mathematical models of physical instruments will be introduced. Various sound synthesis strategies will be introduced: wave tables, additive synthesis, subtractive synthesis, frequency modulation, and granular synthesis. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 530  Energy Storage Systems  3 Credit Hours
This course introduces the basics of energy storage systems for EDV. It will cover battery basics, ultracapacitors, flywheels, and hybrid energy storage concepts. Battery management, battery charging, and battery safety will be covered. Finally, the requirements of EDV and renewable energy application examples will be explained. Lead acid, nickel metal hydride, and lithium ion batteries will be covered. Other energy storage systems such as super conducting magnetic, hydraulic, compressed air, and integrated (hybrid) energy storage systems, will be discussed as well.
Restriction(s):
Can enroll if Class is Graduate or Doctorate
Can enroll if Level is Rackham or Doctorate or Graduate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Automotive Systems Engineering, Electrical Engineering, Computer & Information Science, Industrial & Systems Engr, Computer Engineering, Mechanical Engineering, Software Engineering

ECE 531  Intelligent Vehicle Systems  3 Credit Hours
The course covers important technologies relevant to intelligent vehicle systems including systems architecture, in-vehicle electronic sensors, traffic modeling and simulation. Students will design and implement algorithms and simulate driver-highway interactions.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate or Doctorate
Can enroll if Major is Software Engineering, Electrical Engineering, Computer & Information Science, Computer Engineering

ECE 532  Auto Sensors and Actuators  3 Credit Hours
Study of automotive sensory requirements; types of sensors; available sensors and future needs. Study of functions and types of actuators in automotive systems. Dynamic models of sensors and actuators. Integrated smart sensors and actuators. Term project.
Restriction(s):
Can enroll if Class is Graduate

ECE 533  Active Automotive Safety Sys  3 Credit Hours
This course will introduce students to methods and technologies of automotive active safety systems. Topics include systems architecture, sensors, and future needs. Study of automotive sensory requirements; types of sensors; available sensors and future needs. Study of functions and types of actuators in automotive systems. Dynamic models of sensors and actuators. Integrated smart sensors and actuators. Term project.
Restriction(s):
Can enroll if Class is Graduate

ECE 534  Mob Dev & Ubiqys Comp Sys  3 Credit Hours
This course will introduce students to the technology used in mobile/smart devices and mobile communication networks. Various hardware and software aspects will be introduced, with particular emphasis on the constraints intrinsic to such system. Students will gain an overview of various mobile operating systems and will learn how to develop software for mobile devices. The topics of ubiquitous and pervasive computing will be introduced and discussed. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer & Information Science, Electrical Engineering, Software Engineering, Computer Engineering

ECE 535  All Weather Automotive Vision  3 Credit Hours
Coverage of the next generation of active automotive safety systems including intelligent cruise control, lane departure warning, virtual camber, and back-up and blind spot warning systems. Topics include active safety system architecture, enabling technologies for such systems, and future directions. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate

ECE 536  Data Mining  3 Credit Hours
Introduction to the fundamental concepts of data mining including data exploration, pre-and post-processing, OLAP, predictive modeling, association analysis, and clustering. This course also focuses on the analysis of algorithms commonly used for of data mining applications, mining structured, semi-structured and unstructured data, stream data, and web data. Team oriented course project to provide hands-on experience may be required. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Specialist or Graduate or Doctorate
ECE 539  Production of Elec Prods  3 Credit Hours
The course discussed the manufacturing of discrete components, integrated circuits, hybrid circuits and modules, advances packages, printed circuit boards, optical components, and MEMS products. Special topics on product testing, reliability assurance, accelerated reliability testing, product lifetime models, and automotive environments will also be addressed. The course will be organized as a combination of conventional lectures, workshops-style discussion, and design review sessions. Three lectures hours per week.

Restriction(s):
Can enroll if Major is Manufacturing Engineering, Computer Engineering, Electrical Engineering

ECE 541  Intro to Electrical Energy Sys  3 Credit Hours
The course will cover the sources of energy including coal, nuclear, solar, wind; their impact on the climate; and their technological characteristics in terms of availability, cost and reliability. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Industrial & Systems Engin, Mechanical Engineering, Computer Engineering

ECE 542  Intr to Pwr Mgmt & Reliability  3 Credit Hours
This course will give students an introduction to power and energy management systems. Students will be exposed to a broad range of topics including optimal power flow, Smart Grid technology, economic dispatch, unit commitment, and the impact of renewable energy on power and management systems. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate or Doctorate
Can enroll if College is Engineering and Computer Science

ECE 543  Kinem, Dynam Control Robots  3 Credit Hours
Full Title: Kinematics, Dynamics, and Control of Robots This course provides a systematic study of robotics, covering various topics in kinematics, dynamics, control, and planning for robot systems. The purpose of this course is to let students get familiar with the traditional mathematical description of a robotic system and understand fundamental concepts and principles in robotics, to enable students to derive equations of motion for robotic systems, analyze their kinematic and dynamic properties, and design control strategies, and also to have students gain knowledge and experience about commonly-used robotic systems and mechanisms. Starting with rigid body motion, we will learn a systematic way to describe a robot system that consists of multiple links connected through different kinds of joints. Kinematics will include forward and inverse kinematics and their analytical and constraints. Control will include the classic PID control, position and force control, and trajectory tracking. This course will also discuss some specific topics in robotics research, including robot manipulators, mobile and walking robots, and robot hands, in which we will see how the above principles and methods are being used together. Three lecture hours per week. (W)

Prerequisite(s): ECE 347

Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 544  Mobile Robots  3 Credit Hours
This course gives an introduction to all the fundamentals of mobile robots, ranging from theory, such as kinematics, over hardware, such as sensors and motors, to core algorithms for sensory information processing, motion planning and control, and etc. A high level-overview of different types of mobile robots is presented first. Then, theoretical methods for analyzing the kinematic and dynamic properties of a mobile robot are discussed, followed by the discussion on the key subsystems of a mobile robot, including perception, localization, planning and control. For each subsystem, the discussion includes relevant methods for understanding and constructing the model of the environment or planning and controlling the motion of the robot. The course has three lecture hours per week. Students are expected to have knowledge of MATLAB or C/C++ programming and will be required to accomplish a course-related project. Three lecture hours per week. (F)

Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 545  Intro Robot Syst  3 Credit Hours
Full Title: Introduction to Robotic Systems This course introduces basic components of robotic systems, selection of coordinate frames, homogeneous transformations, solutions to kinematics of manipulators, velocity and force/torque relations, dynamic equations using Euler-Lagrange formulation, obstacle avoidance and motion planning, classical controllers for manipulators and controller design using torque method, and robot simulation tools. Sensing technologies including basic computer vision will be covered. Robot simulation technologies and tools will be introduced. Robotic systems other than manipulators will be introduced at the end of this course. Three lecture hours per week. (F)

Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 546  Electric Vehicles  3 Credit Hours
To introduce fundamental concepts and specifications of electric and hybrid vehicles; vehicle design fundamentals; motors for electric vehicles; controllers and power electronics; energy sources; engineering impact of electric vehicles and practical design considerations. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate

ECE 5462  Elec Aspects of Hybrid Vehicle  3 Credit Hours
To introduce fundamental concepts and the electrical aspects of HEV, including the design, control, modeling, battery and other energy storage devices, and electric propulsion systems. It covers vehicle dynamics, energy sources, electric propulsion systems, regenerative braking, parallel and series HEV design, practical design considerations, and specifications of hybrid vehicles. Three lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate

ECE 550  Communication Theory  3 Credit Hours
The basic limitations and alternatives for communications signaling are studied, using appropriate mathematical tools. The topics include: review of information measure; random process and vector description of signals and noise; optimum receiver principles; signaling alternatives; channel capacity; block and convolutional coding; waveform estimation concepts. Practical system examples are stressed.

Restriction(s):
Can enroll if Major is Electrical Engineering, Computer Engineering
ECE 473 or ECE 554

Restriction(s):
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 554 Embedded Systems 3 Credit Hours

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Software Engineering, Computer Engineering, Computer & Information Science

ECE 5541 Embedded Networks 3 Credit Hours
Embedded network systems merge modern communications, networks, sensing, distributed control and mobile computing enabling novel applications in a broad area of control, automation, and distributed real time systems. The course will focus on vehicular communications and networking, autonomous vehicles and intelligent transportation systems, robotics networks, and smart grids. Topics include: an overview of embedded processors and microcontrollers, digital signal processors, field programmable gate arrays (FPGAs), sensors and actuators, embedded operating systems including various Linux and Android platforms, and embedded networks. Students will be exposed to advanced system design methods, modeling, simulation, and system verification and evaluation. A term project may be required. Three lecture hours per week.

Restriction(s):
Can enroll if Level is Doctorate or Graduate or Specialist

ECE 5542 Embedded Sig Proc and Control 3 Credit Hours
This course bridges the gap between embedded software engineering principles and theoretical signal processing and control concepts. Topics include a survey of embedded software architectures, real-time principles and concerns, sensor and actuator interfacing, P/I/O feedback control systems, Audio/time-series filtering (FIR and IIR filters), embedded image processing, automatic code generation from higher level modeling languages such as MATLAB and Simulink, and working with single-board computers and digital signal processors (DSP). It is a project oriented course, with hands-on assignments, group projects and an individual research component. (F)

Prerequisite(s): ECE 473 or ECE 4951 or ECE 554

Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 555 Stochastic Processes 3 Credit Hours
Review of probability and random variables. Introduction to stochastic processes; stationarity, ergodicity; auto correlation and cross correlation, linear systems with random inputs, spectral analysis, Wiener filtering, Kalman filtering. Applications to smoothing, parameters estimation, prediction, system identification.

Restriction(s):
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 556 Mechatronics 3 Credit Hours
Mechatronics, as an engineering discipline, is the synergistic combination of mechanical engineering, electrical engineering, control engineering, and computer science, all integrated through the design process. The course is to establish a working familiarity with the key engineering elements in the design and control of electro-mechanical systems in general and automotive systems in particular. The key engineering elements include microprocessor technology, electronics, sensors and actuators, data communication and interface, control algorithms, and mechanisms of machine elements. The course is to introduce a design methodology in an integrated system environment through case studies and design projects. (AY)

Prerequisite(s): ME 442 or ECE 365

Restriction(s):
Can enroll if Class is Graduate

ECE 557 Nonlinear Control Systems 3 Credit Hours
Nonlinearities in control systems; phase plane analysis; isoclines, equilibrium points, limit cycles, optimum systems; heuristic methods; harmonic balance, describing function, frequency response and jump phenomena, oscillations in relay systems; state space; optimum relay controls; stability; Liapunov's method.

Restriction(s):
Can enroll if Class is Graduate
ECE 569  Computer-Based Automation  3 Credit Hours
Prerequisite(s): ME 588 or ECE 539
Restriction(s):
Can enroll if Class is Graduate
Cannot enroll if Major is Computer Engineering, Electrical Engineering

ECE 570  Computer Networks  3 Credit Hours
A study of data communications and network architecture fundamentals. Topics include signals and data transmission, modulation, encoding, and public carriers and network architectures; data link network layer, and transport layer protocols; case studies of existing and emerging networks; wireless, embedded, and conventional wired systems. Three lectures hours per week.
Restriction(s):
Can enroll if Class is Graduate

ECE 571  Switching Theory  3 Credit Hours
A basic introduction to modern wireless communication principles and architectures. Channel models, signal generation and reception are explored. Examples of current protocols and architectures of wireless data and voice networks are studied. Self guided lab assignments. A project is required. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 572  High-Speed and Adv Networks  3 Credit Hours
The course introduces concepts in protocols and architecture of high-speed and advanced networks with an emphasis on Internet, ATM networks, wireless local area networks, cellular systems and wireless sensor networks. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 573  Switching Theory  3 Credit Hours
Combination of advanced and sequential logic design, minimization of combinational and sequential circuits, functional decomposition, reliable design and fault diagnosis; incompletely specified sequential machine design, asynchronous sequential circuits and interactive methods.
Restriction(s):
Can enroll if Major is Computer Engineering, Electrical Engineering, Computer & Information Science

ECE 574  Adv Sftwr Technq in Eng Appl  3 Credit Hours
Topics relating to Software Development for engineering applications will be discussed. These may include data structures, algorithm complexity, personal software development process, team software process, Six sigma, DFSS, software techniques, software engineering application, and software design. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate

ECE 5752  Reconfigurable Computing  3 Credit Hours
This course addresses advances in reconfigurable computing techniques, design, and research. The course topics include introduction to RC, Hardware Description Language (HDL) such as VHDL and Verilog HDL, System-On-Chip (SOC), and Network-On-Chip (NOC). Three lecture hours per week.
Prerequisite(s): ECE 475
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering, Computer & Information Science, Computer Engineering

ECE 576  Information Engineering  3 Credit Hours
This course will cover fundamental concepts of information engineering, including theoretical concepts of how information is measured and transmitted, how information is structured and stored, how information can be compressed and decompressed, and information networks such as social networks, affiliation networks and online networks, mathematical theories of information networks. Information engineering applications will be discussed. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham or Graduate
Can enroll if Major is Computer Engineering, Computer & Information Science, Electrical Engineering, Software Engineering

ECE 577  Engineering in Virtual World  3 Credit Hours
An in-depth study of selected topics in design and development of virtual systems in industrial environments. Topics include cyberspaces, techniques for generating virtual worlds in engineering applications, building blocks of virtual environments including hardware and software. Case studies.
Restriction(s):
Can enroll if Major is Computer & Information Science, Computer Engineering, Electrical Engineering
ECE 5770  Autonomous UAS  3 Credit Hours
This course will introduce the basic concepts of autonomous unmanned aerial systems. Topics will include basic flight principles of fixed-wing and rotary-wing aircraft, inertial representations in 3D space, the principles of Bayesian state estimation, visual odometry, path planning, and autonomous navigation. This course will also cover aircraft actuation, sensors and perception (GPS, inertial measurements, ranging, and basic computer vision), sensor fusion technique, and motion control of unmanned aircraft. Students are expected to have knowledge of high-level programming language and will be required to accomplish a course project. Three lecture hours per week. (W)
Prerequisite(s): ECE 347 or IMSE 317
Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 578  Advanced Operating Systems  3 Credit Hours
Advanced techniques and uses in operating system design. Distributed operating systems. Message-based operating systems. Operating systems for parallel architectures. Layered techniques in operating systems. Formal models of operating systems. Current trends in operating system design.
Prerequisite(s): ECE 478 or CIS 450 or IMSE 450

ECE 579  Intelligent Systems  3 Credit Hours
Representative topics include: Intelligent systems design, training and evaluation, decision trees, Bayesian learning, reinforcement learning. A project will be required.
Restriction(s):
Can enroll if Level is Doctorate or Rackham or Graduate
Can enroll if Major is Computer Engineering, Software Engineering, Computer & Information Science, Electrical Engineering

ECE 5791  Vehicle Power Management  3 Credit Hours
This course provides graduate students with a clear understanding of the latest vehicle power management technologies with an emphasis on alternative fuel vehicles. The course will cover topics such as electrified powertrain configurations. Vehicle power management basic concepts, vehicle propulsion system modeling, vehicle power management approaches (analytical approach, wavelet transform technology, DP&QP, and intelligent systems methods). ESS (especially batter) management, power electronics in HESS and motor drive, HEV component optimization, HIL and SIL, vehicle power management future trends, and so on. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate or Doctorate

ECE 580  Digital Signal Processing  3 Credit Hours
This course addresses the analysis and design of discrete-time signals and systems. Students will become familiar with the mathematical tools needed for digital signal processing such as the Fourier transform, frequency response, the sampling theorem, and z-transform method. Topics covered will include the design of digital filters (IIR and FIR filters), characteristics of analog-to-digital and digital-to-analog converters, the spectral analysis of signals, and discrete filters. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate

ECE 5802  Multirate Sig Proc w/Applications  3 Credit Hours
This course provides an introduction to multirate digital signal processing with application in different fields of engineering, with a focus on the presentation of the theoretical foundation for all aspects of multirate digital signal processing. The course examines modern applications of multirate digital signal processing including the design of multirate filter banks, using the wavelets transform to efficiently encode signals for compression purposes, spectral analysis and synthesis of signals. Students will apply software tools to analyze, design and simulate multirate digital signal processing systems. Three lecture hours per week.
Prerequisite(s): ECE 580
Restriction(s):
Can enroll if Level is Rackham or Graduate or Doctorate
Can enroll if Major is Industrial & Systems Engineering, Mechanical Engineering, Software Engineering, Automotive Systems Engineering, Electrical Engineering, Information Systems Engineering, Computer Engineering

ECE 581  Arch for Digital Signal Proc  3 Credit Hours
This course introduces the architectural fundamentals and features of programmable digital signal processors. Numeric representations and arithmetic concepts are discussed, which include fixed-point and floating-point representation of numbers, native data word width, and IEEE-754 floating-point representation. Memory architecture and memory structures of digital signal processors are examined. Programming concepts for DSP processors such as addressing, instruction set, execution control, pipelining, parallel processing and peripherals are discussed. Finally, students will work on related applications employing digital signal processors such as speech processing, instrumentation, and image processing. Three lecture hours per week.
Prerequisite(s): ECE 580
Restriction(s):
Can enroll if Class is Graduate

ECE 582  Intro to Statistical DSP  3 Credit Hours
Review of discrete-time signals and systems, introduction of discrete-time random signals and variables, linear signal models, nonparametric power spectrum estimation, least-squares filtering and prediction, signal modeling and parametric spectral estimation, selected topics. (W)
Prerequisite(s): ECE 580*
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering

ECE 583  Artificial Neural Networks  3 Credit Hours
Students will gain an understanding of the language, formalism, and methods of artificial neural networks. The student will learn how to mathematically pose the machine learning problems of function approximation/supervised learning, associative memory and self-organization, and analytically derive some well-known learning rules, including backprop. The course will cover computer simulations of various neural network models and simulations. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Graduate or Rackham
Can enroll if Major is Electrical Engineering, Software Engineering, Computer Engineering, Computer & Information Science
ECE 5831  Pat Rec & Neural Nets  3 Credit Hours
Students will gain understanding of the language, formalism, and methods of pattern recognition. Various solution approaches will be covered including statistical methods and neural network-based methods. Students will learn how to mathematically pose various pattern recognition problems and analytically derive some well-known statistical results and learning rules. In addition, the student will learn how to perform computer simulations of various statistical and neural network models, and learn how to select appropriate model parameters, such as network architecture, hidden layer size, and learning rate. Case Studies will be presented to illustrate a variety of applications.
Restriction(s):
Can enroll if Level is Rackham or Doctorate or Graduate

ECE 584  Speech Processes  3 Credit Hours
The course introduces the fundamentals of speech processing using digital signal processing methods and techniques. How speech is produced from the human vocal system and the different types of basic speech sound components is addressed, followed by methods to analyze speech signals in both the time domain and frequency domain. Applications of speech processing are also presented. Possible applications covered include speech synthesis, speech coding and speech recognition. A team-based term project may be required. Three lecture hours per week.
Restriction(s):
Can enroll if Class is Graduate

ECE 585  Pattern Recognition  3 Credit Hours
Introduction to pattern recognition (PR) as a process of data analysis. Representation of features in multidimensional space as random vectors. Similarity and dissimilarity measures in feature space. Bayesian decision theory, discriminant functions and supervised learning. Clustering analysis and unsupervised learning. Estimation and learning. Feature extraction and selection. Introduction to interactive techniques in PR. Applications of PR.
Prerequisite(s): IMSE 317
Restriction(s):
Can enroll if Major is Computer Engineering, Computer & Information Science, Electrical Engineering

ECE 586  Digital Image Processing  3 Credit Hours
Monochrome and color vision in man and machines, image quantization edge detection, image enhancement, image restoration, color analysis and processing, multispectral image processing, texture analysis, image coding and compression, morphology, geometrical image modifications.
Restriction(s):
Can enroll if Major is Computer & Information Science, Electrical Engineering, Computer Engineering

ECE 587  Sel Top:Image Proc/Mach Vision  3 Credit Hours
A special topics course providing an in-depth examination of one or several areas in image processing and/or machine vision. Possible areas include medical imaging, advanced concepts in morphology, stereovision, shape form shading, and active vision.
Prerequisite(s): ECE 586
Restriction(s):
Can enroll if Major is Computer & Information Science, Electrical Engineering, Computer Engineering

ECE 588  Robot Vision  3 Credit Hours
This course introduces important theory and modern technology in robot vision. Representative topics are sensors and image formation, advanced algorithms in object feature filtering, extraction and recognition, texture and colors, motion, 3D vision, and applications. Students cannot receive credit for both ECE 4881 and ECE 588. Three lecture hours per week.
Restriction(s):
Can enroll if Major is Computer Engineering, Electrical Engineering, Computer & Information Science

ECE 589  Multidimen Digital Signal Proc  3 Credit Hours
Topics include multidimensional signal analysis methodologies, signal representation, 2-D FIR filter, 2-D recursive systems and IIR filters, spectral estimation and methods, multidimensional signal restoration applications in 2-D and 3-D image processing, reconstruction, and feature estimation. Three lecture hours per week.
Prerequisite(s): ECE 580

ECE 590  Selected Topics  1 to 3 Credit Hours
Individual or group study, design, or laboratory research in a field of interest to the students. Topics may be chosen from any of the areas of electrical engineering. The student will submit a report on the project and give an oral presentation to a panel of faculty members at the close of the term.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 591  Directed Studies  1 to 3 Credit Hours
Special projects for laboratory or library investigation with the intent of developing initiative and resourcefulness. The student will submit a report of the project and give an oral presentation to a panel of faculty members at the close of the term.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Computer Engineering, Electrical Engineering

ECE 592  Directed Research  1 to 3 Credit Hours
Special problems centered on developing experimental skills. In consultation with a faculty advisor a student will prepare a proposal describing the work to be performed for approval by the department. An oral presentation and a final report on the research effort are required for completion. (F,W,S)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Electrical Engineering, Computer Engineering

ECE 610  Analog IC  3 Credit Hours
****NO DESCRIPTION AVAILABLE****

ECE 612  Wireless Sensor Networks  3 Credit Hours
Advanced data communications, sensor motes, systems architecture and design, wireless communications standards and protocols, routing, security, operating systems, language support, and applications. Three lecture hours per week.
Prerequisite(s): ECE 570
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham or Doctorate
Can enroll if Major is Mechanical Engineering, Computer & Information Science, Industrial & Systems Engin, Computer Engineering, Electrical Engineering
ECE 614  Ctrl Networks for Embedded Sys  3 Credit Hours
Networks have emerged in a wide range of embedded applications (e.g. aerospace, maritime, vehicular, industrial) as an enabler of flexible and robust system design. These embedded control networks differ from information technology (IT) networks in that the primary users are not humans, but sensors, actuators, and embedded processors. Thus, the data sets, performance requirements, operational environment, and need for reliability and robustness necessitate a different approach to network design. As the complexity of the systems grows, developers will be presented with significant challenges. It is important that engineers are acquainted with fundamental tools and strategies for designing and building such networks. Three lecture hours per week.
Prerequisite(s): ECE 570
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate
Can enroll if College is Engineering and Computer Science

ECE 615  Advanced Power Electronics  3 Credit Hours
This course covers advanced technologies in power electronics with emphasis on hybrid vehicle and renewable applications. The course will cover topics such as resonant converters, vector control, field oriented control, battery chargers, vehicle to grid management, power factor correction and harmonic control, model predictive control, renewable energy systems (solar, wind and ocean) and their requirement for power converters, electric drive transportation components, silicon carbide power devices. Three hours per week.
Prerequisite(s): ECE 515
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham or Graduate

ECE 616  Advanced Topics in Power Sys  3 Credit Hours
This course will cover the advanced topics of power system planning, operation, and control. The course will help students understand the algorithms and tools required to analyze electric power systems. The major focus of this course is to educate and train graduate students in developing research abilities through literature survey on advanced power system technologies and hands-on projects on modeling and analyzing smart grid applications. (F)
Prerequisite(s): ECE 541 or ECE 542
Restriction(s):
Can enroll if Level is Rackham or Doctorate or Graduate
Can enroll if College is Engineering and Computer Science

ECE 643  Humanoids  3 Credit Hours
This course covers two major aspects of humanoid robots, locomotion and manipulation. The purpose of this course is to provide students with advanced techniques for generation and control of movement of a humanoid robot itself and its motion to change the environment. Articulated body dynamics, contact modeling, and control dynamics will be presented first. Locomotion will cover balance control, footstep planning, walking gait generation, joint space trajectory planning, and human motion tracking. Manipulation will include grasping, optimal planning, and dynamic manipulation. Simulation techniques and software will be introduced. This course will include programming and simulation work and students will be required to accomplish a related course project. The course has three lecture hours per week. (W)
Prerequisite(s): ECE 5001 and ECE 540 or ECE 543
Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 644  Advanced Robotics  3 Credit Hours
This course covers advanced topics related to current research in algorithms and artificial intelligence for robotics such as planning and control issues for robotic systems, taking into account the math and algorithms underneath state-of-the-art robotic systems. The majority of these techniques are heavily based on probabilistic reasoning and optimization-two areas with wide applicability in intelligent robotic systems. Students are expected to have knowledge of high-level programming language and will be required to accomplish a research-related course project. Three lecture hours per week. (W)
Prerequisite(s): (ECE 500 or ECE 5001) and ECE 544
Restriction(s):
Can enroll if College is Engineering and Computer Science

ECE 646  Adv Elec Drive Transportation  3 Credit Hours
This course gives in depth study in advanced technologies in the electrified vehicle powertrain. The course will cover topics such as hybrid powertrain architectures, dynamics of hybrid transmissions, battery management systems, battery control electronics, PHEV and HEV power management, survivability of military hybrid vehicles, packaging of PHEV electric drive components, optimization of PHEV components, optimization of electric drive efficiency through power management, vehicle to grid technology, emerging technology in electric drive transportation. Three hours per week.
Prerequisite(s): ECE 5462
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Graduate or Rackham

ECE 650  Info Theory in Elec Comm  3 Credit Hours
Source models and source coding, channel and channel models, information measure, mutual information and entropy, coding for discrete sources such as variable-length codes and optimum variable-length encoding procedure, discrete memoryless channels and capacity, techniques for coding and decoding such as parity-check codes, cyclic codes, and Hamming codes, quantization and error analysis, coding techniques such as DPCM, run-length coding, sub-band coding, transform coding.
Prerequisite(s): ECE 555
ECE 661  Sys Ident and Adaptive Control  3 Credit Hours
Minimal state space models, on-line estimation schemes, parameter convergence for SISO and MIMO systems, direct and indirect adaptive prediction, minimum prediction error controllers (one-step ahead and model reference control), minimum prediction error adaptive controllers (direct and indirect approach), adaptive control algorithms for close-loop pole assignment, Kalman filter, extended Kalman filter.
Prerequisite(s): ECE 560

ECE 665  Optimal Control Systems  3 Credit Hours
Parameter optimization; optimization problems for deterministic systems; calculus of variations on optimal control; maximum principle of Pontrjagin; dynamic programming; numerical solution of optimal programming and control problems; singular solutions.
Prerequisite(s): ECE 560

ECE 670  Adv Comp Netw WL Comm  3 Credit Hours
In depth study of advanced technologies in computer networks and wireless communications. The course will cover topics such as advances in Internet, wireless communications and sensor networks, wireless networked control systems, vehicular networks, smart grid, cloud computing, multimedia networking, and network security. Three lecture hours per week.
Prerequisite(s): (ECE 570 and ECE 5701) or CIS 627
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham

ECE 675  Computer Architecture II  3 Credit Hours
Prerequisite(s): ECE 575

ECE 679  Adv Intelligent Sys  3 Credit Hours
This is a research seminar on advanced topics in intelligent systems. The course will focus on intelligent systems in solving complex problems. Topics include ensemble techniques, multi-objective optimization, and intelligent agents. The course will require student presentations and a substantial term project. Three lecture hours per week.
Prerequisite(s): ECE 579 or CIS 579
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Graduate or Rackham

ECE 681  Adv Digital Sig Processing  3 Credit Hours
Topics include statistical signal processing, multi-rate systems, bank of filter design, multi-resolution formation of wavelet, the discrete wavelet transform, wavelet-based digital signal processing. The course has substantial computer simulation and research project components. Three lecture hours per week.
Prerequisite(s): ECE 580
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Doctorate or Rackham or Graduate
Can enroll if Major is Computer Engineering, Computer & Information Science, Software Engineering, Electrical Engineering, Industrial & Systems Engin, Mechanical Engineering

ECE 691  Adv Directed Studies  1 to 3 Credit Hours
Advanced Directed Studies for Doctoral Students: Special topic in electrical or computer engineering. A project report and a seminar are required.
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science

ECE 695  Master's Project  3 Credit Hours
Application of the methodologies, tools and theory of software engineering to produce a specific validated software product. Projects can be faculty-generated, self-generated, and/or work related. All projects must be undertaken with one or more students under the supervision of the instructor. Prior to enrollment, a project proposal must be prepared and approved by the instructor and department chair. Standard software engineering documents must be prepared and approved at each phase of the project, and an oral presentation of the project is required. Course includes lectures and case studies. Permission of instructor required.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Software Engineering

ECE 698  Doctoral Seminar  0 Credit Hours
After attaining candidacy, every Ph.D. student is required to attend and actively participate in research seminars given by CECS Dean?s office or individual departments in CECS. A student gets a satisfactory grade if he/she attends at least two research seminars during the course period.
(F,W,S)
Restriction(s):
Can enroll if Major is

ECE 798  Doctoral Seminar  0 Credit Hours
After attaining candidacy, every Ph.D. student is required to attend and actively participate in research seminars given by CECS Dean?s office or individual departments in CECS. A student gets a satisfactory grade if he/she attends at least two research seminars during the course period.
Restriction(s):
Can enroll if Major is

ECE 980  Pre-Cand Dissertation Research  1 to 9 Credit Hours
Full Title: Pre-Candidate Dissertation Research Dissertation work by a pre-candidate student in Electrical and Computer Engineering program conducted under guidance of the faculty advisor.
Restriction(s):
Can enroll if Level is Doctorate
Can enroll if Major is
Energy Systems Engineering (ESE)

ESE 500 Sustainable Energy Systems  3 Credit Hours
The course provides an overview of energy technology from a broad perspective that encompasses technical and environmental aspects. It covers a wide range of traditional and alternative energy sources and presents assessments of their availability, sustainability, and environmental impacts as well as evaluation of their potential role in solving the global energy problem. Course work includes project.

Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if Level is Graduate or Rackham
- Can enroll if College is Engineering and Computer Science

ESE 501 Energy Conversion  3 Credit Hours
This course covers fundamental engineering principles for converting available energy sources, renewable and nonrenewable, into other energy forms of direct utility. It may include such topics as steam and gas based power plants as well as devices for solar, wind, and hydraulic energy conversion.

Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if Level is Graduate or Rackham
- Can enroll if College is Engineering and Computer Science

ESE 502 Energy Storage Systems  3 Credit Hours
This course introduces the basics of energy storage systems for EDV. It will cover battery basics, ultracapacitors, flywheels, and hybrid energy storage concepts. Battery management, battery charging, and battery safety will be covered. Finally, the requirements of EDV and renewable energy application examples will be explained. Lead acid, nickel metal hydride, and lithium ion batteries will be covered. Other energy storage systems such as super conducting magnetic, hydraulic, compressed air, and integrated (hybrid) energy storage systems, will be discussed as well.

Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if Level is Doctorate or Graduate or Rackham
- Can enroll if College is Engineering and Computer Science
- Can enroll if Major is Software Engineering, Automotive Systems Engineering, Computer Engineering, Mechanical Engineering, Computer & Information Science, Industrial & Systems Engin, Electrical Engineering

ESE 503 Energy Policy, Econ & Environ  3 Credit Hours
This course will give an overview of the current energy and environment policies, their origin and implementation, and the process of developing such policies. It will consider the public policy issues related to alternative and renewable energy systems at both national and international levels. The roles of government, industry and consumers in making these policies will be discussed. The economics of various alternative energies will be considered and trade-offs between them will be discussed from the viewpoint of availability, safety, environmental impact and related issues.

Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if College is Engineering and Computer Science

ESE 504 Energy Eval/Risk&Optimization  3 Credit Hours
Formulation of economically efficient strategies and development plans for energy systems requires a sound understanding of energy supply, demand and allocation options as well as the interrelationships between the energy sector, environment, and the economy. Analysis of these energy policy decisions requires evaluation of investment decisions on potential energy projects (and programs) in terms of selected project viability indicators and comparison against a set of decision criteria. This course will provide students the knowledge and skills to identify, analyze, assess, and manage the risks inherent in selecting various energy sources, projects and portfolios of projects. The tools and techniques explored in this class will be applied to energy, environment and resource management policy and investment decisions which are multi-criteria including societal cost and environmental impacts.

Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if College is Engineering and Computer Science

ESE 505 Master's Thesis  3 to 6 Credit Hours
Research for master's thesis under the direction of a faculty adviser.

Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if College is Engineering and Computer Science

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
- (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

An asterisk denotes that a course may be taken concurrently.
Engineering Core (ENGR)

**ENGR 500 Curricular Practical Training**  1 Credit Hour
This course is designed for international graduate students with valid student visas who are eligible for Curricular Practical Training (CPT) and have been offered a position/internship that will provide the students with practical work experience related to their field of study and in consultation with a faculty advisor. Upon completion of CPT, students are required to submit a report to advisor which describes their CPT experience. The advisor will assign a pass/fail grade based on evaluation of the report. (F, W, S)

**Restriction(s):**
Can enroll if Level is Rackham or Doctorate or Graduate
Can enroll if College is Engineering and Computer Science

**ENGR 700 Research Methodology**  0 Credit Hours
Full Course Title: Doctoral Research Methodology Seminar This course provides doctoral students with the fundamental training for conducting high-level scholarly research used in the various fields of engineering. Topics include: evaluation of information resources, intellectual property, writing for journals and dissertation, effective work with scientific literature, literature review, plagiarism, publication, bibliographic management, library resources, and Students also complete Responsible Conduct of Research (RCR) training workshops. The students will also be required to attend the GSI training workshop offered by CRLT at the UM Ann Arbor campus. The course is required to be completed for all doctoral students in the first year of enrollment and prior to taking the qualifying exam. (F, W, S)

**Restriction(s):**
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

---

**Engineering Management (EMGT)***

**EMGT 500 Management for Engineers**  3 Credit Hours
This course provides the knowledge, skills, and attitude required to manage an efficient and productive engineering organization within the company, and manage effectively at upper cooperate levels. Topics include: integrating and coordinating people, functions and projects; managing technical resources; leadership and management; strategic planning for integrating and transferring technologies into products and processes; managing innovation, ethical behavior and legal compliance.

**Restriction(s):**
Can enroll if Level is Rackham or Graduate

**EMGT 505 Systems Engineering**  3 Credit Hours
Introduction to systems and systems engineering, tools in systems analysis, the system design process, design for operational feasibility and systems engineering management. (College of Engineering and Computer Science).

**Prerequisite(s):** IMSE 510

**Restriction(s):**
Can enroll if Level is Rackham or Graduate

**EMGT 510 Managerial Finance and Econ**  2 Credit Hours
This course covers foundation concepts in Financial Management, with emphasis on project evaluation. Topics include financial statement use and analysis, time value of money, valuation of stocks and bonds, capital budgeting and risk/return analysis. (College of Business).

**Prerequisite(s):** EMGT 540 or EMGT 541

**Restriction(s):**
Can enroll if Level is Graduate or Rackham

**EMGT 515 Corporate Strategy**  2 Credit Hours
This course seeks to develop an understanding of the management of technology as a strategic organization resource. Implementation policies are discussed within the context of personal, technological and social frames of values. Strategy topics include: the process of strategy development and integration of technological, functional, and corporate strategies. Implementation policies include organization design, and planning and control at the short-term and longer-term levels. (College of Business).

**Prerequisite(s):** EMGT 510 and EMGT 535 and (EMGT 541 or EMGT 540)

**Restriction(s):**
Can enroll if Level is Rackham or Graduate

**EMGT 520 Prod & Oper Engineering I**  3 Credit Hours
Production and operations management techniques including forecasting, inventory control, MRP, detailed scheduling, aggregate planning, process variability and its effects on throughput and inventory, factory physics principles, and lean methods.

**Prerequisite(s):** EMGT 505

**Restriction(s):**
Can enroll if Level is Rackham or Graduate

**EMGT 525 Tot Qua Mgmt and Six Sigma**  3 Credit Hours
This course covers implementing Total Quality Management (TQM), undertaking Six Sigma Projects, and applying Baldrige National Quality Award criteria and ISO 9000 principles to improve quality performances in an organization. Topics include Definitions and Importance of Quality, Quality Costs, Quality Function Deployment (QFD), Product Specification and Critical-to-quality Measures (CQM), Statistical Quality Control (SQC), Robustness Concepts, Quality System Design and Evaluation. Six Sigma and DMAIC Methodologies, Design for Six Sigma (DFSS) process, IDOV (Identity requirements, Deign alternatives, Optimize the design and Verify process capability) Methodology, and several other concepts and tools related to quality are also covered.

**Prerequisite(s):** IMSE 510

**Restriction(s):**
Can enroll if Level is Rackham or Graduate

**EMGT 530 Info Sys for Engin Management**  3 Credit Hours
This course covers the organizational foundations of information systems, their emerging strategic role, and the technical foundation for understanding computers and information systems. Topics include: introduction to management information systems; decision support systems; artificial intelligence and expert systems; end-user computing; data vs. information; data communication and connectivity; data management. (College of Engineering and Computer Science).

**Restriction(s):**
Can enroll if Level is Rackham or Graduate
EMGT 535  Marketing Mgt and Policy  2 Credit Hours
This course studies the salient features of technology-driven marketing and distinguishes technology-push from market-pull marketing. Highlights the technology-marketing interface in the context of strategy planning, market segmentation, product innovation, channels of distribution, promotional and pricing decisions. Particular attention will be paid to technology inventor-user interactions, process of adoption, and technological innovation. (College of Business).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

EMGT 541  Acct Fund for Decision Making  3 Credit Hours
This course introduces fundamental accounting concepts and applications that are useful in the evaluation of financial information and decision tools relevant to project planning. Students will achieve an understanding of basic accounting and cost management tools that are essential to decision making. Emphasis will be placed on assessing financial statement information through an understanding of accounting practice, the relationship between business activities and an organization's cash flows.

EMGT 545  Org Beh and Hum Res Mgt  2 Credit Hours
This course encompasses key areas of human resources management and organization behavior as they relate to technical work environments. Organization design and theory will be discussed, along with motivation, leadership, employee selection skills, group and team processes, and managing diversity. Techniques for devising a personal career development plan are covered. (College of Business).
Prerequisite(s): EMGT 500
Restriction(s):
Can enroll if Level is Rackham or Graduate

EMGT 550  Business Ethics/Law  2 Credit Hours
This course provides students with an overview of the legal environment of business. Concepts including product liability, intellectual property, and contracts are introduced within the context of the legal system. Ethical consideration in personal, professional, and organizational decision making are integrated throughout this course. (College of Business).
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate

EMGT 559  Capstone Project  3 Credit Hours
Students will receive the opportunity and training to integrate and apply both the technical and program management aspects acquired in various courses to an engineering project or problem.
Prerequisite(s): IMSE 5215 and IMSE 5205 and IMSE 517
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if Major is Program & Project Management

EMGT 560  Engin Mgt at Upper Levels  1 Credit Hour
This course provides the knowledge and skills in leadership and management required to build and manage the company's technical resources toward the attainment of corporate objectives. Topics covered include: technological forecasts; corporate strategic planning; corporate portfolios of technical programs; group and strategic planning; project collection; management of institutional time; corporate computer facilities; proposals; introducing new products and processes; inventory and upgrading; engineering audits; and the role of engineering in joint ventures. (College of Engineering and Computer Science).
Prerequisite(s): EMGT 520 and EMGT 530 and EMGT 545
Restriction(s):
Can enroll if Level is Rackham or Graduate

EMGT 570  Enterprise Information Systems  3 Credit Hours
The purpose of this course is to provide a foundation for the analysis, design and implementation of enterprise information systems. Topics include systems and organization theories, and information systems planning and evaluation. Students will be also introduced to various systems development life cycle phases of an enterprise information system. Students will acquire an understanding of the flow of information (forecasts, financial, accounting and operational data) within an enterprise and the factors that should be considered in designing an integrated enterprise information system. This includes all systems in the business cycle from revenue forecasts, production planning, inventory management, logistics, manufacturing, accounts payable, sales, accounts receivable, payroll, general ledger and report generation. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 application development software suite. (F,W)

EMGT 580  Mgt of Prod and Proc Design  3 Credit Hours
This course provides the knowledge and skills needed to manage the design of a product or process. Topics covered include: creativity, types of products, types of processes, generalized design process, identification and translation of customer needs into engineering specifications, designing for function and quality factors, design for manufacturability, life-testing, cost estimating, reporting on design projects, and concurrent engineering. (College of Engineering and Computer Science).
Prerequisite(s): EMGT 520 and EMGT 525 and ACC 505
Restriction(s):
Can enroll if Level is Graduate or Rackham or Doctorate

EMGT 589  Master's Thesis  1 to 6 Credit Hours
Graduate students electing this course, while working under the general supervision of a member of the program faculty, are expected to plan and conduct the work themselves, to submit a thesis for review and approval, and to present an oral defense of the thesis.
Restriction(s):
Can enroll if Level is Rackham or Graduate

An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
English (ENGL)

ENGL 501 Beowulf and Other Engl Poems 3 Credit Hours
A literary analysis of Beowulf and other old English poems. Some attention will be given to the structure and pronunciation of Old English. Students cannot receive credit for both ENGL 401 and ENGL 501.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 505 Chaucer 3 Credit Hours
An introduction to the poetry of Chaucer, with primary reference to the Canterbury Tales and some attention to Chaucer's short poems. Students cannot receive credit for both ENGL 405 and ENGL 505.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 508 Shakespeare I: Earlier Works 3 Credit Hours
Intensive study of selected works from the first half of Shakespeare's career, designed to increase the student's critical appreciation and understanding. Students cannot receive credit for both ENGL 408 and ENGL 508.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)

Restriction(s):
Can enroll if Class is Graduate

ENGL 509 Shakespeare II: Later Works 3 Credit Hours
Intensive study of selected works from the second half of Shakespeare's career, designed to increase the student's critical appreciation and understanding. Students cannot receive credit for both ENGL 409 and ENGL 509.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)

Restriction(s):
Can enroll if Class is Graduate

ENGL 512 Milton 3 Credit Hours
An intensive study of Paradise Lost and Paradise Regained, Apologitica, and the shorter poems, including Samson Agonistes and Comus. Consideration is given to historical background and to other writings by Milton insofar as they illuminate his major works. Students cannot receive credit for both ENGL 412 and ENGL 512.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 513 Shakespeare's Contemporaries 3 Credit Hours
An intensive study of selected British Romantic writers, with attention to the historical and literary contexts in which they wrote. Students cannot receive credit for both ENGL 413 and ENGL 531.

Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40) and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 514 Seventeenth-Century Readings 3 Credit Hours
An intensive study of the period of mid-17th century authors or literary movements, such as Browne, Burton, and the metaphysical poets. Students cannot receive credit for both ENGL 414 and ENGL 514.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 520 Maj Engl 18th-Century Authors 2 to 3 Credit Hours
An intensive study of two or three authors, such as Dryden, Behn, Pope, Swift, Burney, Austen, or Samuel Johnson. Students cannot receive credit for both ENGL 420 and ENGL 520.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 524 18th-Century English Novel 3 Credit Hours
A study of the rise and development of the English novel during the 18th Century. Consideration is given to such novelists as Defoe, Richardson, Fielding, Sterne, Austen, and Smollett. Students cannot receive credit for both ENGL 424 and ENGL 524.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate

ENGL 531 English Romantic Writers 3 Credit Hours
An intensive study of selected British Romantic writers, with attention to the historical and literary contexts in which they wrote. Students cannot receive credit for both ENGL 431 and ENGL 531.

Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)

Restriction(s):
Can enroll if Class is Graduate
ENGL 532  Victorian Writers  3 Credit Hours
An intensive study of selected Victorian poets and/or nonfiction prose writers, with attention to the literary and historical contexts in which they wrote. Students cannot receive credit for both ENGL 432 and ENGL 532. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 536  Memoir and Travel Writing  3 Credit Hours
A course in narrative non-fiction that focuses on memoir and travel writing. Reading involves several books as well as essay-length examples. Assignments include both short analytical papers and the writing and revising of three original articles, based on research, interviews, memory, and observation, and drawing on literary techniques. In addition to these assignments, graduate students must prepare a substantial critical analysis focusing on a particular writer or theme, and present their work to the class as well as in writing. 
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40
Restriction(s):
Can enroll if Level is Graduate

ENGL 540  Maj Engl/Amer 20th-Cent Author  3 Credit Hours
An intensive examination of the works of representative English and American authors since 1900. Students cannot receive credit for both ENGL 440 and ENGL 540. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 541  Major 20C/21C English Authors  3 Credit Hours
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 200 or ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Can enroll if Class is Graduate

ENGL 542  Studies in 20-21 Century Lit  3 Credit Hours
Intensive study of a special topic in 20th- or 21st-century literatures in English. The course may treat a single author (e.g. E.M. Forster), a movement (e.g. Postmodernism) a genre (e.g. modern short story), or a theme (e.g. Literature of World War). 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 270 or COMP 280 or COMP 220) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 545  20C/21C Women Authors  3 Credit Hours
An analysis of selected works of significant and emerging 20th and 21st century women authors writing in English, with special emphasis on issues of gender and social and cultural identity. Additional assignments will distinguish this course from its undergraduate version. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 550  Maj Amer Auth to the Civil War  3 Credit Hours
An intensive study of two or three authors, such as Charles Brockden Brown, Nathaniel Hawthorne, or Harriet Beecher Stowe, from the earlier periods of American Literature. Students cannot receive credit for both ENGL 450 and ENGL 550. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 551  Maj Am Auth: Civ War to WWI  3 Credit Hours
An intensive study of two or three major authors from the period between the Civil War and World War I, such as Emily Dickinson, Charles Chesnutt, or Henry James. Students cannot receive credit for both ENGL 451 and ENGL 551. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 552  Major 20C/21C American Authors  3 Credit Hours
An intensive study of several Modern American authors from World War I to the present, such as Langston Hughes, Frost, Hemingway, and Faulkner. Students cannot receive credit for both ENGL 452 and ENGL 552. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 553  Contemporary American Novel  3 Credit Hours
Study of selected American novels and novelists since WWII with an eye to their social, political, and literary contexts. Course will focus on major works by major authors and representative works by lesser-known writers in order to explore technical, thematic, and critical crosscurrents among the works. Students cannot receive credit for both ENGL 453 and ENGL 553. 
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate
ENGL 554 Postmodern Literature  3 Credit Hours
This course explores the expression of postmodernism in literature (primarily fiction) and critical theory. Selected works of fiction and creative non-fiction will be analyzed in terms of the problems and issues raised by the postmodern movement. Students cannot receive credit for both ENGL 454 and ENGL 554.
Prerequisite(s): (COMP 106 or COMP 220 or COMP 270 or COMP 380 or CPAS with a score of 40) and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

ENGL 556 Teaching Fiction  3 Credit Hours
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters

ENGL 561 Modern English Grammar  3 Credit Hours
The morphological and syntactic analysis of the structure of present day English considered in the light of modern linguistic science. Students cannot receive credit for both ENGL 461 and ENGL 561.
Prerequisite(s): LING 280 or LING 480 or LING 580
Restriction(s):
Can enroll if Class is Graduate

ENGL 564 Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners in related developments in linguistics, philosophy, and psychology. (OC)
Prerequisite(s): COMM 201 or COMM 220 or COMM 290 or ENGL 230 or ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250
Restriction(s):
Can enroll if Class is Graduate

ENGL 565 Discourse Analysis  3 Credit Hours
An examination of the syntactic and semantic devices and structures underlying communication in written text and oral interaction. Material to be analyzed will vary from term to term (technical reports, scholarly articles, newspaper stories) but examples will be drawn primarily from the written language. (OC)
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENG 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
Restriction(s):
Can enroll if Class is Graduate

ENGL 568 Writing Young Adult Fiction  3 Credit Hours
In this course participants will explore the young adult novel form the point-of-view of a reader and a writer. They will read recently published and critically acclaimed popular young adult novels. They will use these texts to explore such issues as gender, race and identity as they relate to young adult lives and their respective cultures generally. They will use these texts as models for the production of their own texts and will consider the constraints and benefits of constructing and writing to a particular audience. They will consider if and why young adult novels are abbreviated or limited in relationship to adult literature. In addition to reading about ten novels, they will complete several creative exercises leading up to a final portfolio. Additional reading assignments or projects will distinguish this course from its undergraduate version. Students will not receive credit for both ENGL 468 and ENGL 568.
Restriction(s):
Can enroll if Class is Graduate

ENGL 569 Contemp African American Lit  3 Credit Hours
An intensive study of major 20th century African American writers. Fiction, poetry, autobiography, and drama will be examined, but one genre will be stressed in any given term, e.g., the novel. Lectures will provide historical and biographical context for analysis and discussion of the works. (OC).
Prerequisite(s): (COMP 106 or CPAS with a score of 40) or COMP 270 or COMP 220 or COMP 280 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Can enroll if Class is Graduate

ENGL 571 Sexual Subcultures in Lit  3 Credit Hours
This course surveys primarily contemporary literature by writers who identify as gay, lesbian, bi-sexual, transgender, or queer. By studying the self-representation and culturally unique perspective of this emerging canon of writers, students in this course understand the emergence of LGBTQ literary traditions and understand the cultural diversity within these traditions. Students learn to identify the aesthetic qualities (such as camp, performativity, coded subtexts, homoeroticism, and the relationship between creativity and sexuality), and historical, political, and social concerns that characterize LGBTQ literary and cultural production. Topics covered include the struggle for civil rights before and after Stonewall, coming out narratives, the negotiation of homophobic cultures, post-colonial writers, and memoirs of the LGBTQ experience, as well as the historical emergence of sexual categories and the literary critique of heteronormativity. This course counts toward the English discipline diversity requirement.
Restriction(s):
Can enroll if Class is Graduate

ENGL 572 Readings in Muticult Contexts  3 Credit Hours
An examination of the effect of different cultural backgrounds on reading and literature. Topics include contrastive rhetoric, folk narrative, and multicultural juvenile literature. This course does not satisfy requirements for the English concentration. Not open to English concentrators. (YR)
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) or ENGL 230 and (ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Can enroll if Class is Graduate

ENGL 573 Arab American Women Writers  3 Credit Hours
This course examines the literary and cultural contributions of Arab American women novelists, poets, filmmaker and artists to the development and consolidation of cultures of understanding and coexistence; explores the relations between, among others, citizenship and belonging, race and national security, gender and geographical mobility, and ethnic minorities and mainstream consciousness; stresses how literary and artistic productions of Arab and Arab American women writers and artists foster alternative visions of socio-cultural coexistence, dialogue, and hospitality by means of technical and stylistic experimentation and renovation.
ENGL 574  Second Lang Acquisition:Engl  3 Credit Hours
A survey of fundamental concepts and major concerns in the study of English as a Second Language (ESL). The course examines a variety of psycholinguistic and sociolinguistic issues related to second language acquisition (SLA), ranging from theoretical to pedagogical. A primary focus is on developmental patterns and cognitive processes of SLA and individual variation in ESL speakers in terms of their social motivations and learning strategies. Implications for practical concerns such as the ESL teaching profession, instructional materials and curriculum development will be addressed where relevant. Graduate students will be assigned additional readings from a graduate course text and be required to submit an extra data analysis assignment and write a longer research paper.
Prerequisite(s): LING 480 or LING 580
Restricion(s):
Can enroll if Class is Graduate

ENGL 577  African American English  3 Credit Hours
An examination of the structure, history and use of African-American English. Topics will include the pronunciation, grammar and vocabulary of African-American English, theories of origin, linguistic repertoire and code-switching in African-American communities, the Ebonics controversy, and the role of this variety in education and identity formation. Additional reading assignments or projects will distinguish this course from its undergraduate version. Student cannot receive credit for both ENGL 477 and ENGL 577.
Prerequisite(s): LING 280 or LING 281 or LING 480 or LING 580
Restriction(s):
Can enroll if Class is Graduate

ENGL 582  History of the English Lang  3 Credit Hours
A thorough grounding in the history and structure of the English language. At issue are the linguistic and ideological origins of standard English, and the strengths and limitations of different methods of analyzing the history of the language. The course will emphasize sound change, grammatical change, and their sociolinguistic context. (YR)
Prerequisite(s): LING 480 or LING 580
Restricion(s):
Can enroll if Class is Graduate

ENGL 584  World Englishes  3 Credit Hours
A study of the origin and significance of different forms of English throughout the world. Contact with other languages, pidginization, creolization, standardization, and the formation of the three circles of English are examined. (YR)
Prerequisite(s): LING 580 or LING 480
Restriction(s):
Can enroll if Level is Undergraduate

ENGL 588  Env Lit & Reps of Nature  3 Credit Hours
An interdisciplinary study of the ways in which the relationship between "nature" and humankind has been represented in literature and other forms of cultural expression. Emphasis on American and British texts of the 19th and 20th centuries, but assigned materials may include reading from other cultures and historical periods.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 200 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)
Restriction(s):
Can enroll if Class is Graduate

ENGL 590  Topics in English  1 to 3 Credit Hours
Examination of problems and issues in selected areas of English. Titles listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs. Only offered for graduate credit. (OC).
Restriction(s):
Can enroll if Class is Graduate

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

English Composition (COMP)

COMP 564  Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through study of representative practitioners and related developments in linguistics, philosophy, psychology, communication, and composition and rhetoric. Additional work will distinguish this course from its undergraduate version. Students may not receive credit for both COMP 464 and COMP 564.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280
Restriction(s):
Can enroll if Class is Graduate

COMP 585  Theories of Writing  3 Credit Hours
This course investigates why and how people write for particular audiences while investigating writing as it takes place in a variety of contexts. Subjects include: cognitive and social theories of writing and the writing process, theories of persuasion, writing across the curriculum, writing for multiple audiences, writing in the workplace, writing for self and for publics, and teaching writing. The course is appropriate and useful to students interested in teaching writing at the K-12 level, those interested in careers in communication and those who wish to better understand how writing promotes personal and societal change. Additional reading assignments or projects distinguish this course from its undergraduate version. Students will not receive credit for both ENGL 485 and COMP 485 and COMP 585.
Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or COMP 280 or CPAS with a score of 40
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham
Can enroll if College is Arts, Sciences, and Letters

COMP 590  Topics in Composition  1 to 3 Credit Hours
Examination of problems and issues in selected areas of Composition. Titles listed in the Schedule of Classes will change according to content. Course may be repeated for credit when specific topic differs. Only offered for graduate credit. (OC)
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Entrepren neurship (ENT)

ENT 626 Intro to Entrepreneurship 3 Credit Hours
This course focuses on the process of new enterprise creation. It will examine how the interplay of personal and group creativity and market demand provides a basis for the conception, design and launch of new ventures. Although a variety of business options will be considered, emphasis will be placed on the creation of technology-driven growth enterprises. The course content will familiarize students with the tasks of capital formation, business planning, staffing, systems design, and operations management in the entrepreneurial context. Students taking the course should have an interest in creating a new firm or initiating an entrepreneurial venture within a larger organization. All students will develop a plan for their venture.

Restriction(s):
Can enroll if Class is Graduate

ENT 627 Manag the Entrepreneurial Firm 3 Credit Hours
This course addresses the issues of managing an existing enterprise. It gives special emphasis to the challenges associated with growth and maturation of the firm. These include second round and mezzanine financing, market penetration and new market entry, expanding the product lines, building the management team, formulating operating policies and procedures, strengthening the firm's competitive position and establishing market entry barriers, and creating harvest options.

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Environmental Science (ESCI)

ESCI 504 Field Studies in Env Science 2 Credit Hours
A systematic analysis of the environment. This course will focus on the analysis of the Rouge River Watershed as an ecological unit. The student will make intensive analyses of the river water and the surrounding land surface at selected sites. The results will provide a composite of the water quality and land use of the various tributaries. Emphasis will be placed on proper sampling and testing techniques, field and lab safety procedures, aquatic chemistry, biological organisms as indicators of pollution, and the role of wastewater dumping on the watershed.

ESCI 525 Soil in the Environment 3 Credit Hours
The study of soil in the environment, including its formation, classification, physical attributes and engineering properties with an emphasis on soil-water statics and dynamics, chemical attributes and processes. Students are expected to have background knowledge of physical geology. The course will include field trips and field work, including the collection of soil samples from the Universities natural area. The course will also include a laboratory component in which students will perform a variety of test, e.g. bulk density, engineering properties on the soil samples collected. the course will typically be team taught. (S, AY)

Prerequisite(s): GEOL 118

Restriction(s):
Can enroll if Level is Graduate or Rackham

Can enroll if College is Engineering and Computer Science or Business or Education, Health, and Human Services or Arts, Sciences, and Letters

ESCI 572 Environmental Communications 3 Credit Hours
Preparation and presentation of both oral and written technical abstracts and reports, including environmental newsletters, thesis, and media releases. Professional scientists must be able to effectively communicate ideas and concepts to other scientists and to the general public. This course will provide the foundations in learning how to communicate ideas effectively and succinctly. (F, YR)

Restriction(s):
Can enroll if Class is Senior or Graduate

Can enroll if College is Arts, Sciences, and Letters

ESCI 574 Watershed Analysis 3 Credit Hours
An interdisciplinary study of watersheds, the most commonly used bioregional unit. The course integrates the analysis of many factors which contribute to the character of watersheds, including bedrock and surficial geology, surface and groundwater hydrology, social history, land use history, water quality analysis, biological diversity, laws and regulations, management models, drinking water and wastewater systems, best management practices, and educational programs. The Rouge River watershed will serve as the primary case study.

Restriction(s):
Can enroll if Class is Graduate

ESCI 585 Spatial Analysis and GIS 3 Credit Hours
Application of the principles of Spatial Analysis and the use of Geographic Information Systems as a research tool in Environmental Science. Emphasis will be placed on the use of commercially available software including: ESRI's ArcView GIS, Golden Software's Surfer and Adobe PhotoShop. Emphasis will also be placed on the use of the Michigan spatial data warehouse program and the Michigan geographic framework program for metadata specific to Michigan. (AY)

Restriction(s):
Can enroll if Class is Graduate

ESCI 595 Topics in Environmental Science 3 Credit Hours
Problems or readings on specific topics or subjects in environmental science. (YR)

Restriction(s):
Can enroll if Class is Senior or Graduate

Can enroll if College is Arts, Sciences, and Letters
ESCI 595G  Topics in Environmental Sci  3 Credit Hours
Topic: Soil in the Environment. A study of the textural and chemical classification of soil as well as the biologic, engineering and geologic aspects of soil science including applications to agriculture and agronomic science. The course will explore topics such as soil formation, soil-water statics and dynamics, soil-energy balances, soil fertility and plant nutrition, biodiversity, soil and water management, soil pollution and remediation.

ESCI 597  Off-Campus Independent Study  1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MSES program to pursue independent research under the direction of a graduate faculty member off campus. A written proposal describing the project (including the nature of the project itself, dates, where the project will be done and the faculty member supervising the project) must be approved by the MSES program director/committee before the student can register for the course. Project must be appropriate to the student's chosen track. It must be designed to produce a scholarly paper, papers, or other evidence(s) that reflect significant results from the course. (F, W, S).

Restriction(s):
Can enroll if Class is Graduate

ESCI 599  On-Campus Independent Study  1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MSES program to pursue independent research under the direction of a graduate faculty member. A written proposal describing the project (including the nature of the project itself, dates, and the supervising faculty member) must be submitted to the Program Director/committee for approval before the student can register for the course. Project must be appropriate to the student's chosen track. It must be designed to produce a scholarly paper, papers, or other evidence(s) that reflect significant results from the course. (F, W, S).

Restriction(s):
Can enroll if Class is Graduate

ESCI 698  MSES Master's Project  3 Credit Hours
Intended for students who present a plan for a project using methods of intellectual exploration and analysis. Possible projects include gathering data through laboratory or field based studies, using interviews and survey instruments to gauge human responses. They should involve creative representations, writing, and other forms of interdisciplinary analysis. To be carried out under the general supervision of a member of the graduate faculty in Natural Sciences. Project plan must be approved by the MSES Program Director/committee before student registers for this course. (F, W, S).

Restriction(s):
Can enroll if Class is Graduate

ESCI 699  MSES Master's Thesis  1 to 6 Credit Hours
MSES students electing this thesis option in the last stage of the program will work under the general supervision of a member of the graduate faculty in Natural Sciences, but will plan and carry out the work independently. Prospectus and thesis plan must be approved by the MSES Program Director/committee before student registers for this course. (F, W, S).

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Environmental Studies (ENST)

ENST 574  Environmental Education  3 Credit Hours
This course involves an in-depth analysis of the environmental education at both the elementary and secondary school level, particularly stressing the environment as a teaching resource. Community resources as they related to environmental education are also investigated. Graduate students will be expected to become knowledgeable about and complete a review of current research that involves the efficacy of environmental education.

Restriction(s):
Can enroll if Class is Graduate

ENST 588  Env Lit & Reps of Nature  3 Credit Hours
An interdisciplinary study of the ways in which the relationship between "nature" and humankind has been represented in literature and other forms of cultural expression. Emphasis on American and British texts of the 19th and 20th centuries, but assigned materials may include readings from other cultures and historical periods.

Prerequisite(s):
(ENGL 230 or ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239)

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Exploratory Studies (EXPS)

EXPS 500  STEM2 Teaching and Learning  3 Credit Hours
The content of this course and the pedagogy employed will provide students with experiences in topics related to the integration of science, technology, engineering, health and mathematics (STEM2). Students will experience examples of STEM activities and will explore how STEM2 disciplines impact society. (YR)

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.
EXPS 507 Inquiry-based Math and Science 3 Credit Hours
This inquiry-based laboratory course intends to support the learning of early childhood educators (birth to grade 2) in foundations of science and mathematics. The course integrates concepts and processes that arise in both disciplines, such as classification; units and measurements; shapes and structures and their properties; patterns; problem solving; representation; cause and effect; use of evidence (three credits). Required for Early Childhood Comprehensive Major. Elective for Elementary Education Certification Students. Students cannot receive credit for both EXPS 407 and 507. Students seeking graduate credit should elect EXPS 507. The required lab fee is to cover course materials.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate
Can enroll if Degree is Master of Arts
Can enroll if College is Education, Health, and Human Services
Can enroll if Major is Early Childhood, Education

EXPS 515 Evolution for Teachers 1 to 3 Credit Hours
Course is designed to meet the needs of grade K-12 teachers teaching about evolution. The Michigan Department of Education requires students to be able explain how scientists construct and scientifically test theories concerning the origin of life and evolution of species.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters or Education, Health, and Human Services

EXPS 520 Science Ed Action Research 3 Credit Hours
This is the culminating course that integrates prior experiences in the MSSE program. Each student will identify a research question related to his/her own classroom practice, review relevant literature, collect and analyze data, and complete a scholarly report.
Prerequisite(s): EDK 500
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services or Arts, Sciences, and Letters
Can enroll if Major is Science Education, Education, Environmental Science

EXPS 543 Family/School/Community Collab 2 Credit Hours
Characteristics, roles, and functions of contemporary families are described. Various communication and training strategies designed to promote collaboration and teamwork within and between the school staff, the families, and community are described and practiced through discussion, problem-solving activities, and roleplaying. Family effectiveness assessment instruments and strategies are also described and practiced.
Restriction(s):
Can enroll if Class is Graduate

EXPS 593 Simulation and Gaming 1 to 3 Credit Hours
This course focuses on simulation and gaming as approaches to learning which are fundamentally different from methods traditionally used in education, industry, business, and psychology. Students will have the opportunity to examine many different types of simulations and games and to participate in selected ones. They will also be able to design one for use in their own area of interest.
Restriction(s):
Can enroll if Class is Graduate

EXPS 598 Exploring Writing/Chld&Yng Ad 3 Credit Hours
This course provides a theoretical foundation for writing instruction of children/adolescents in grades K-8. Emphasis is placed on modeling, instructional strategies, and assessment for supporting student writers that pre-service and in-service teachers can use to facilitate students' development of written language across various genres. TB clearance, criminal background check, and bloodborne pathogens/infectious diseases training required.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

EXPS 599 Individ Res in Lit in Educatio 1 to 3 Credit Hours
Requires the student to initiate, and carry to completion, a literature in education based research project under the supervision of a faculty member. May be elected more than once for a total of not more than three credits as approved by advisor.
Restriction(s):
Can enroll if Class is Graduate

EXPS 620 Action Research 3 Credit Hours
Students will learn about action research as a means to become a reflective practitioner to make improvements in an educational setting. Students will identify a research question related to his/her own professional practice, review relevant literature, collect and analyze data, develop and implement an action plan, and complete a scholarly report.
Prerequisite(s): EDK 500
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if College is Education, Health, and Human Services

EXPS 715 Evolution for Teachers 3 Credit Hours
Course is designed to meet the needs of grade K-12 teachers teaching about evolution. The Michigan Department of Education requires students to be able explain how scientists construct and scientifically test theories concerning the origin of life and evolution of species.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EXPS 720 Science Ed Action Research 3 Credit Hours
This is the culminating course that integrates prior experiences in the MSSE program. Each student will identify a research question related to his/her own classroom practice, review relevant literature, collect and analyze data, and complete a scholarly report.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EXPS 799 Ind. Res. in Lit in Education 1 to 3 Credit Hours
Requires the student to initiate, and carry to completion, a literature in education based research project under the supervision of a faculty member. May be elected more than once for a total of not more than three credits as approved by advisor.
Restriction(s):
Can enroll if Class is Specialist or Doctorate

EXPS 820 Action Research 3 Credit Hours
Students will learn about action research as a means to become a reflective practitioner to make improvements in an educational setting. Students will identify a research question related to his/her own professional practice, review relevant literature, collect and analyze data, develop and implement an action plan, and complete a scholarly report.
Prerequisite(s): EDK 500

Other Content
An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

An asterisk denotes that a course may be taken concurrently.

**Finance (FIN)**

**FIN 531  Fin Fundament & Value Creation  3 Credit Hours**

This course provides the fundamentals of the finance discipline with an emphasis of value creation as the primary objective of a corporation. Capital budgeting analysis and techniques are extensively discussed. Valuation of securities is presented along with an introduction to modern portfolio theory and market efficiency. Issues related to international financial management are also introduced.

**Prerequisite(s):** ACC 505 and (DS 520* or IMSE 514*)

**Restriction(s):**

Can enroll if Class is Graduate

**FIN 581  Topics in Corporate Finance  3 Credit Hours**

This course integrates theory and practice for major topics such as capital structure and dividend policy. Additional topics include leasing, corporate governance, mergers and acquisitions, short-term financial management, and risk management. These topics are examined from the perspective of the corporate financial manager.

**Prerequisite(s):** FIN 531 and BE 530* and ACC 505 and (DS 520 or IMSE 514)

**FIN 650  Corporate Valuation & Strategy  3 Credit Hours**

This course examines a variety of financial management topics, such as project and enterprise valuation and risk analysis, corporate restructuring, dividend policy, corporate governance, and current asset management using case studies and readings.

**Prerequisite(s):** FIN 581 and BE 530

**FIN 651  Invstmnt Proc, Analysis & Mgmt  3 Credit Hours**

This course provides an examination of the process of investment analysis and management. Topics include: analysis of fixed income securities, stock valuation, and introduction to derivative securities; discussion of portfolio theory and management; and an overview of investment environment. Wherever it is appropriate, the above topics will also be discussed in a global context.

**Prerequisite(s):** ACC 505 and FIN 531 and (DS 520* or IMSE 514*)

**Restriction(s):**

Can enroll if Class is Graduate

**FIN 652  Derivatives & Risk Management  3 Credit Hours**

The focus of this course is on understanding the derivative securities and their use in risk management. This course provides an in-depth introduction to options and option pricing as well as an extensive overview of forward, future and swap contracts. This course will draw upon the intuition and analytic tools developed to examine sophisticated financial products or strategies that firms and investors have used in their risk management.

**Prerequisite(s):** FIN 531 and ACC 505 and (DS 520 or IMSE 514)

**Restriction(s):**

Can enroll if Class is Graduate

**FIN 653  Topics/Investments & Cap Mkts  3 Credit Hours**

This course prepares students for career development and advancement in the challenging investment profession. The course provides an in-depth study of advanced contemporary topics in global investments and capital markets that are selected from the common body of knowledge of the Chartered Financial Analysts (CFA) program. Topics may include a subset: advanced investment theory and valuation techniques, asset allocation, behavioral finance, hedge fund, emerging markets and global investing, ethics for investment professionals, financial statements and security analysis, market efficiency, financial instruments, portfolio management and performance evaluation, etc. The format and the topics may vary in each offering.

**Prerequisite(s):** FIN 652 FIN 651 and (DS 520 or IMSE 514)

**Restriction(s):**

Can enroll if Class is Graduate

**FIN 654  Financial Intermediation  3 Credit Hours**

Financial intermediaries provide services to borrowers and lenders, often creating new securities or providing brokerage services broadly defined. Intermediaries include depository institutions such as commercial banks and non-depository institutions such as security firms, pension funds and insurance companies. This course studies the functions of intermediaries, the industry regulations, and competition in a deregulated environment. Special emphasis is placed on financial markets and fiscal instruments created by intermediaries, risk of intermediation, risk management, and financial innovations in the industry.

**Prerequisite(s):** FIN 531* and ACC 505 and (DS 520 or IMSE 514)

**FIN 655  International Financial Mgt  3 Credit Hours**

This course views international finance at the micro level, but of necessity it will cover some aspects of macro-level international finance as well, such as the international financial system and balance of payments mechanism. The following topics will be covered: the international financial system, balance of payments, foreign exchange, exchange risk management, international financial markets, foreign investment, and foreign trade financing.

**Prerequisite(s):** FIN 531 and ACC 505 and BE 530 and (DS 520 or IMSE 514)
FIN 656 Fixed Income Securities 3 Credit Hours
The fixed income market, accompanied by the introduction of sophisticated financial engineering techniques, has grown enormously over the last two decades. Today, the fixed income market has been a vital segment of the global financial market. This course covers major topics associated with this market, including bond pricing, yields, and volatility; term structure of interest rates and yield curve; market structure and analytical techniques for Treasury, municipal, corporate bonds, mortgage-backed securities, asset-backed securities, and bond with embedded options. The fundamental objective of this course is to help students develop analytical skills for pricing fixed income securities and managing interest rate risk. In addition, materials covered in this course are compatible with the Common Body of Knowledge in Analysis of Debt Investments that is required by the Chartered Financial Analysts (CFA) examination. Students will not receive credit for both FIN 456 and FIN 656.
Prerequisite(s): (MATH 113 or MATH 115 or MPLS with a score of 116) and FIN 651* and (FIN 581 or FIN 652 or FIN 654 or FIN 655)
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Geology (GEOL)

GEOL 510 Urban Geology 3 Credit Hours
The study of how the geosciences can be used to solve community-based environmental problems. Taught within the context of the Rouge River watershed, one of the most urbanized watersheds in the country, the focus of this 3-week course is water and watersheds. Classroom lectures are combined with extensive field work, field trips and guest speakers. Taught as a summer II course in July primarily for teachers (middle school and high school) with little or no background in geology. Teachers taking this course serve as mentors for their respective students. Teachers also spend time developing modules that can be incorporated into their existing classroom activities.
Restriction(s):
Can enroll if Class is Graduate
Cannot enroll if Program is MS-Environmental Science

GEOL 550 Glacial Geology 3 Credit Hours
The study of landforms and sediments created by glaciers both past and present. The glacial activities of the past 2 million years will be emphasized, particularly the evolution of landforms common to the upper Midwest. The influence of glacial deposits on development, construction methods, planning and environmental protection will also be discussed. (AY).
Prerequisite(s): GEOL 118 and GEOL 218
Restriction(s):
Can enroll if Class is Graduate

GEOL 560 Engineering Geology 3 Credit Hours
The application of structural geology and stratigraphy to the practice of civil engineering. Emphasis is placed on the application of geologic analysis to facilitate the successful completion of engineering projects. Case histories will be used to evaluate how geologic knowledge has been used in both successful and unsuccessful engineering projects. (W, AY)
Prerequisite(s): GEOL 370
Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior

GEOL 570 Geochemistry 3 Credit Hours
Application of the principles and techniques of geochemistry to the field of groundwater hydrology. Composition of natural water and the processes affecting the geochemical environment on water composition and water pollution. Course will include a review of analytical methods for the determination of water quality. Three hours lecture. (AY).
Prerequisite(s): GEOL 375 and CHEM 344
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if College is Business

GEOL 574 Urban Watersheds 3 Credit Hours
Study of the geology, contamination and sustainable development in urban watersheds with a focus on the fate and transport of contaminants in the soil and water. Students are expected to have a rudimentary background in physical geology.

GEOL 575 Contaminant Hydrogeology 3 Credit Hours
Advanced lecture treatment of selected topics in subsurface hydrology including contaminant transport and fate of organic and inorganic constituents, aquifer test analysis, and the use of selected case histories. (AY)
Prerequisite(s): GEOL 375
Restriction(s):
Can enroll if Class is Graduated

GEOL 577 Geology Field Methods 1 to 2 Credit Hours
One to two week long intensive field course conducted at the end of the winter semester. The course will emphasize geological field methods and analysis of geologic terrains. Use of Brunton compass and clinometer, GPS, recognition and identification of geological structures, preparation and interpretation of geologic maps, satellite images and aerial photographs will also be covered. May be repeated for credit when destination varies. Two credit hours will be given for a field course which lasts two weeks. Alternatively, students may elect to take the shorter course (one-week to 10 days) for 2 credit hours if they are willing to serve as a teaching assistant. Organizational meetings will be held during the winter semester. (YR).
Prerequisite(s): GEOL 118 and GEOL 218
Restriction(s):
Can enroll if Class is Graduate
**GEOL 578  Geology of the National Parks  3 Credit Hours**
The study of the geology (stratigraphy, structure, geomorphology) of major national parks and monuments. Specific areas visited vary from year to year, enabling the course to be repeated for credit. Emphasis is placed on developing note taking skills in the field, describing rock sequences in outcrop, interpreting geologic maps and aerial photographs, and evaluating cratonic sequences, regional correlations, paleogeographic and paleoclimatic reconstructions, small and regional scale structural patterns, and facies changes related to rising and falling sea level.

**Restriction(s):**
Can enroll if Class is Graduate

**GEOL 587  Groundwater Modeling  3 Credit Hours**
Lecture and computer laboratory applications of two- and three-dimensional groundwater flow and contaminant transport problems. Visual Modflow, Modpath (-PLOT and SUTRA), MT3D, and Surfer will be used to evaluate remedial alternatives (e.g., pump and treat, funnel and gate or trench and drain systems). EPA’s Basin software combined with ESRI’s GIS software ArcView will be used to evaluate and compare the Rouge River watershed with other small-scale watersheds in Michigan. (AY)

**Prerequisite(s):** GEOL 375 or GEOL 498*

**Restriction(s):**
Can enroll if Class is Graduate

**GEOL 590  Topics in Earth Science  1 to 4 Credit Hours**
Current topics in Earth Science. One to four graduate credit hours. (OC)

**Restriction(s):**
Can enroll if Class is Graduate

**GEOL 590A  Topics in Earth Science  1 Credit Hour**

**TOPIC: Rocks and Minerals.** Students will explore the formation of rocks and minerals, the relationships of classes of rocks, the formation of soil, and the use of sedimentary rocks and associated fossils in the development of the geologic time scale. Topics will be presented in the form of modules that will involve hands-on learning activities for elementary school teachers presented in the context of fundamental earth science concepts.

**Restriction(s):**
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:

- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally

### Health Information Technology (HIT)

**HIT 500  Economics of Healthcare  3 Credit Hours**
The course will focus on the special features of healthcare as a commodity, the demand for health and medical care services, the economics explanations for the behavior of medical care providers (i.e., physicians and hospitals) and the functioning of insurance markets. Also this course will examine the role of economic justification for government involvement in the medical care system. Finally, we will use the tools we have learned to compare different healthcare systems in the world. Topics include: Production of Health, Demand for Healthcare, and Grossman Model; The Health Economics of Bads; Role of Hospitals, Physicians, Healthcare Labor Market, and The Pharmaceutical Industry; Issues surrounding insurance such as Information Asymmetry, Moral Hazard, Adverse Selection and Lemon’s Markets; Government Regulation and Intervention; Comparative Health Care Systems and the impacts of the ACA on health and healthcare.

**Prerequisite(s):** ECON 201 and ECON 202

**Restriction(s):**
Can enroll if Class is Graduate

**HIT 510  Management of Healthcare Data  3 Credit Hours**
This course discusses the nature of and important statistical methods for analyzing healthcare related data. The course begins by covering the structure and semantics of coding systems used in the healthcare industry while avoiding detailed coverage of the meaning of data values. Descriptive statistical methods (graphical and numerical) that depict the central tendency and variability of data; theoretical and empirical probability distributions for discrete and continuous data; point and interval estimations of unknown parameter values; parametric and nonparametric hypothesis tests for numerical, categorical, and ordinal data; analysis of variance; and regression analysis are then covered. A statistical software package will be used to analyze healthcare data.

**Prerequisite(s):** HIT 500*

**Restriction(s):**
Can enroll if Class is Graduate

**HIT 520  Clinical & Evidence Based Med  3 Credit Hours**
This course is a graduate course on Evidence Based Medicine. Course content includes the evidence and causes of inconsistency in healthcare, clinical decision processes, assessment of evidence supporting both diagnostic and treatment decisions, comparing the different research methods in clinical literature, and comparing evidence-based versus traditional approaches to clinical practice.

**Prerequisite(s):** HIT 510

**Restriction(s):**
Can enroll if Class is Graduate

---

### German (GER)

**GER 599  Advanced Individual Projects  1 to 4 Credit Hours**
Advanced individual study project in German language, literature, or civilization may be pursued under the direction of a faculty supervisor. (OC).

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:

- (F) fall term
- (W) winter term
- (S) summer term
- (F, W) fall and winter terms
- (YR) once a year
- (AY) alternating years
- (OC) offered occasionally
Can enroll if Program is MS-Psychology, MPP-Public Policy

Can enroll if Class is Graduate

Prerequisite(s):
cannot receive credit for both HPS 403 and HPS 503.

disease surveillance systems. The course also includes some hands-on internal processes and external review agencies, and vital statistics and care statistics, reimbursement methodologies, health care monitoring by systems, quality assurance in health care delivery, commonly used health records, health data privacy issues, disease classification and scoring information documentation in the form of paper and electronic medical include fundamentals of computers and data management, medical information documentation in the form of paper and electronic medical records, health data privacy issues, disease classification and scoring systems, quality assurance in health care delivery, commonly used health care statistics, reimbursement methodologies, health care monitoring by internal processes and external review agencies, and vital statistics and disease surveillance systems. The course also includes some hands-on computer applications instruction to familiarize students with commonly used software platforms utilized in health care administration. Student cannot receive credit for both HPS 403 and HPS 503.

HPS 501 Health Policy St Internship 3 Credit Hours

The Health Policy Studies Internship is an academic, curriculum-based practical work experience in a health care setting, health insurance firm, or health policy agency that provides students with hands-on experience to enhance understanding of issues relevant to health policy and health service delivery. The internship is normally unpaid and, when taken as a three credit hour course, consists of 8 hours per week of field work over a 14-week semester. Students are required to attend an internship seminar that meets weekly and includes a series of lectures on organizational, ethical, and administrative topics, intended to link the work experience with students’ prior coursework. (F, W)

Prerequisite(s): HPS 440 or HPS 540

Restriction(s):
Can enroll if Class is Graduate

HPS 502 Graduate Seminar 3 Credit Hours

Seminar focuses on current issues and practical problems in health care organization, delivery, and financing. The Case Method (where appropriate) is used to demonstrate and discuss real problems and approaches in functioning health care institutions in Southeastern Michigan. The course is primarily from the point of view of individuals responsible for administering or advising institutions. Students cannot receive credit for both HPS 402 and HPS 502. (F)

Prerequisite(s): HPS 440 or HPS 540

Restriction(s):
Can enroll if Class is Graduate

HPS 503 Medical Information Systems 3 Credit Hours

Medical Information Systems deals with how information is created, stored and used in health care settings. Areas to interest for this course include fundamentals of computers and data management, medical information documentation in the form of paper and electronic medical records, health data privacy issues, disease classification and scoring systems, quality assurance in health care delivery, commonly used health care statistics, reimbursement methodologies, health care monitoring by internal processes and external review agencies, and vital statistics and disease surveillance systems. The course also includes some hands-on computer applications instruction to familiarize students with commonly used software platforms utilized in health care administration. Student cannot receive credit for both HPS 403 and HPS 503.

Prerequisite(s): HPS 440 or HPS 540

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Program is MS-Psychology, MPP-Public Policy

HPS 504 Financing Health & Medical Sys 3 Credit Hours

The American health care system faces two great problems: access to health services and high and rising costs. This course looks at the problems of uninsured citizens as well as the strains placed on health care facilities in providing services for them. Europeans have dealt with problems of access and cost controls through universal health care coverage and the course takes up various models in use today. The course also looks at American health insurance and "managed care" programs such as HMOs and PPOs as methods of providing health care coverage as well as controlling costs. The course introduces students to services provided by the government including Medicare, Medicaid, and SCHIP. Students will learn the basics of creating a budget under constraints such as contractual limitations and Diagnosis-Related Groups (DRGs). Offered once a year, ordinarily in the Winter semester. Students cannot receive credit for more than one of the following: HPS 404, HPS 504, HPS 451, HPS 551, or PADM 451. (W)

Prerequisite(s): ECON 201

Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

HPS 505 Healthcare Administration 3 Credit Hours

FULL TITLE: Concepts of Healthcare and Human Services Administration. This course introduces students to administrative models and skills that can be used at a supervisory level. These conceptions include strategic planning, marketing, organizational communications, quality assurance, project management and team skills, supervision and evaluation, conflict resolution and office cultures and politics. A critical and historical perspective is used to understand the origins and meanings of these conceptions and the extent to which they correspond with the service mentality of health and human services. Applications to the health and human services will be central to the course.

Prerequisite(s): HPS 440 or HPS 540

Restriction(s):
Can enroll if Level is Graduate
Can enroll if Program is MS-Psychology, MPP-Public Policy

HPS 510 Quantitative Research 4 Credit Hours

An introduction to methods of data collection and analysis. Also a discussion of research design and the philosophy of social sciences. Additional reading assignments or projects will distinguish this course from its undergraduate version HPS 410. Students cannot receive credit for both HPS 410 and HPS 510. (F, W, S).

Prerequisite(s): SOC 200 or SOC 201

Restriction(s):
Can enroll if Class is Graduate

HPS 512 Principles of Epidemiology 3 Credit Hours

The study of the frequency and distribution, as well as the causes and control, of disease in human populations. Using data analysis tools, one can identify causes of disease and the effects of prevention and treatment. This course is an application of research design to determine the extent to which environment (toxins, for instance), heredity, childhood development, and lifestyle influence morbidity and mortality rates. Graduate students? work will include re-analyzing original data in a confirmatory, in contrast to exploratory mode.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if Program is MS-Psychology
HPS 542 Medical Ethics 3 Credit Hours
Issues in medical ethics are among the most exciting and most urgent facing the world today. This course will explore some of these issues: the relationship between patient and healthcare provider, informed consent, the right to refuse treatment, confidentiality; assisted suicide and euthanasia; treatment of defective newborns; scarce resources, social justice and the right to healthcare; cloning and genetic manipulation; new reproductive technologies; and others. We will discuss issues from the standpoint of patients, medical professionals, and citizens who shape policy in a democratic society. Ethical theories and concepts will be stressed. Students cannot receive credit for both HPS 442 and HPS 542. Prerequisite(s): any previous course in Philosophy or permission of instructor. (F, W, S).

Prerequisite(s): PHIL 100 or PHIL 120 or PHIL 233 or PHIL 234 or PHIL 240 or PHIL 301 or PHIL 302 or PHIL 303 or PHIL 304 or PHIL 305 or PHIL 310 or PHIL 315 or PHIL 320 or PHIL 340 or PHIL 350 or PHIL 355 or PHIL 365 or PHIL 369 or PHIL 370 or PHIL 371 or PHIL 375 or PHIL 380 or PHIL 390 or PHIL 441 or PHIL 445 or PHIL 485 or PHIL 490

Restriction(s):
Can enroll if Class is Graduate

HPS 548 Comparative Health Care System 3 Credit Hours
An introduction and overview of the English, Swedish, and People’s Republic of China health care systems. Focus on cultural and other organizational characteristics, unique features, approaches and ability to solve problems. Emphasis on how the three systems help us understand the American health care system. Additional reading assignments or projects will distinguish this course from its undergraduate version HPS 448. Students cannot receive credit for both HPS 448 and HPS 548. (F, W, S).

Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

HPS 556 Health Care and the Law 3 Credit Hours
A sociological study of legal issues in health care, including regulation of hospitals, consent for treatment, confidentiality, experimentation, family planning, children’s rights, access to health care. The emphasis will be on the organizational and personal consequences of legal requirements. Junior/Senior standing is a requirement. Students cannot receive credit for both HPS 456 and HPS 556. (W).

Restriction(s):
Can enroll if Class is Graduate

Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Health and Human Service (HHS)

HHS 506  Program Evaluation  3 Credit Hours
This course will provide an introduction to key concepts in program evaluation. Students will learn about the systematic steps involved in evaluating public programs for efficiency and effectiveness. The course will rely on case studies, text examples and discussion. This course is the graduate equivalent of HHS 406. Graduate students enrolled in this course will produce a paper that is substantively different with increased requirements than the paper produced by undergraduates enrolled in HHS 406. In addition, graduate student examinations will require deeper responses that focus on synthesizing both text and journal article materials. (OC)
Restriction(s):
Can enroll if Class is Graduate

HHS 570  Data Science and Ethics  3 Credit Hours
Technological innovations in how individuals, organizations, and governments collect and share personal information have raised myriad concerns regarding how that information can be best protected. In today’s highly networked world, individuals must acquire the knowledge and skills to engage with technologies in a safe and secure manor. This course provides an interdisciplinary exploration of the social, legal, ethical, and design challenges that arise when it comes to securing personal information and helping individuals maintain desired levels of privacy at home, work, and everywhere in between. Graduate students interact with a local agency and produce a paper regarding a relevant security issue. Students may not receive credit for both HHS 470 and HHS 570. (OC)
Prerequisite(s): MATH 115 and MATH 116 and (MATH 227 or MATH 217) and (MATH 205 or MATH 215) and CIS 150 and MATH 200 or CIS 200 or ECE 200

HHS 690  Graduate Research  3 Credit Hours
To provide masters candidates with the opportunity to undertake a research project under the supervision of a faculty member. The research topic is chosen by the student, in consultation with a faculty member in the appropriate discipline. Written approval must be obtained at least two weeks prior to registration on a form available in the Graduate Office. The request must include a comprehensive description of the proposed research project, as well as a time line for the project’s completion. (A maximum of 3 credit hours of research course work may be applied toward graduation requirements upon approval from the Program Advisor.)
Restriction(s):
Can enroll if Class is Graduate

HHS 691  Topics in Health IT  3 Credit Hours
This is a graduate seminar focused on the latest developments in Health Information Technology. Topics Vary. See schedule of classes for current offerings. May be elected more than once if topics differ.
Restriction(s):
Can enroll if Class is Graduate

HHS 692  Graduate Internship  3 Credit Hours
The internship provides real-world experience for students in a professional environment. Participating employers hire students within parameters set by the internship program. Students are required to submit a report and evaluation documents at the end of each work assignment and participate in an assessment session with the internship staff. (A maximum of 3 credit hours of internship course work may be applied toward graduation requirements upon approval from the Program Advisor.)
Restriction(s):
Can enroll if Class is Graduate

Other Content
- An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
- An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

History (HIST)

HIST 5312  European Encounters 1400-1800  3 Credit Hours
During the early modern period, merchants, explorers and travelers set out from the European West in unprecedented voyages of discovery, intensifying interaction between cultures and initiating contact with previously unknown civilizations. In this advances seminar we examine original documents (in English) as well as current scholarship about encounters between groups of Europeans and inhabitants of other parts of the world from the perspective of both sides. Comparing these contradictory (and often incompatible) accounts of the same events, provides a more comprehensive understanding of the process of European expansion, and of the strengths (and limitations) of historical sources. Additional assignments will distinguish the undergraduate and graduate versions of this course.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters
HIST 5401 Seminar: African Diaspora 3 Credit Hours
Research seminar on the history of the African Diaspora in the Atlantic World. This course covers examples of classic texts in the field, as well as significant new scholarship, with an emphasis on critical reading, analysis, and the development of an independent research project. Students gain a deeper understanding of the significance of the African Diaspora in the New World, derived from lectures and discussions providing an overview of this subject, as well as the micro views gleaned from sharing classroom presentation about students' individual research topics. The graduate version of this course includes weightier readings and assignments, with a research paper for potential publication.

Restriction(s):
Cannot enroll if Class is Freshman or Sophomore or Junior or Senior
Can enroll if Level is Rackham or Graduate

HIST 5505 Feminism & Mod. Mid. East 3 Credit Hours
This course provides an analysis of the history, historiography, and sources for the study of feminism in the Middle East since 1800. Additional assignments will distinguish the graduate version of this course from the undergraduate version.

Restriction(s):
Can enroll if Class is Graduate

HIST 5515 Culture & Hist. in Mod. Iran 3 Credit Hours
Alongside the most influential academic studies of Iran, this course uses cultural sources (such as literature and film) as windows on the pivotal social and political movements in Iranian history since 1800. This study of cultural change factors in cultural debates inside Iran, the growth of the Iranian Diaspora, and the increased presence of Iranian culture in electronic media. Additional assignments distinguish the graduate version of this course from the undergraduate version.

Restriction(s):
Can enroll if Class is Graduate

HIST 5600 U.S. Cultural History 3 Credit Hours
The seminar concentrates on scholarly interpretations of U.S. history through a cultural lens. It features close analysis of classic texts in American cultural history as well as significant new works of scholarship. Students gain a deeper understanding of the cultural aspect of U.S. history and a familiarity with this mode of analysis, its guiding theories, newest trajectories and scholarly debates, and impact on the field of history as a whole. The graduate version of this course features a major research project. Cannot receive credit for both HIST 490A and HIST 5600.

Restriction(s):
Can enroll if Class is Graduate

HIST 565 The Family in History 3 Credit Hours
An analysis of the emergence of the modern family from the 16th century to the present with focus on the history of childrearing, family size and structure, intrafamilial and inter-generational relationships and population patterns. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY)

Restriction(s):
Can enroll if Class is Graduate

HIST 5650 Sem in US Women's History 3 Credit Hours
Seminar on the historiography and key primary sources related to U.S. Women's History. The course covers examples of classic texts in the field as well as significant new works of scholarship, with an emphasis on critical reading, analysis, and historiography of the field. Students gain a deeper understanding of the field, its guiding concepts, foundational texts, newest trajectories, and impact on the field of history as a whole. The graduate version of this course includes weightier readings and assignments.

Restriction(s):
Can enroll if Class is Graduate

HIST 5677 Arab American Identity 3 Credit Hours
Extensive discussions and critical analysis of the main markers of Arab American identity formation from late nineteenth century to present. This seminar provides in-depth assessments of immigrant narratives from various sources and disciplinary approaches on specific racial, ethnic, and gender experiences within the larger U.S. context. Additional assignments distinguish the graduate version of this course from the undergraduate version.

Prerequisite(s): HIST 300

Restriction(s):
Can enroll if Class is Graduate

HIST 5678 Middle Eastern Diasporas 3 Credit Hours
This course explores the diasporas of Arabs, Turks, Assyrians, and Iranians living in Europe and the Americas that have occurred since the 1880s. It pays careful attention to how "aspects of diaspora" shape, mimic, transect, and undermine the political and economic regimes of which they are part. The reception of Middle Eastern communities in different national contexts and historical periods receive special attention as do their adaptive strategies as religious, ethnic, gendered, and racialized minorities. Those enrolled in the graduate level of the course pursue additional readings and assignments.

Restriction(s):
Can enroll if Class is Graduate

HIST 590 Topics in History 1 to 3 Credit Hours
Problems and issues in selected areas of history. Title changes according to content. Course may be repeated when specific topic differs. (OC)

HIST 590A Topics in History 1 to 3 Credit Hours
TOPIC TITLE: Self-Emancipation During the Civil War for Middle School Teachers This course will examine one of the most frequently debated subjects in the field of Civil War history-that is, what role did African-Americans (both free and enslaved) play in the war-time emancipation of slaves? Through an examination of the question from multiple perspectives, a close reading of primary sources, the viewing of historical documentaries, and active discussion, students will explore the merits of the opposing viewpoints and will be able to reach an informed conclusion of their own about the debate. In the process will be introduced to the subtleties of historical interpretation, the ways in which history is used by individuals and groups in American society, and to the evolution of the process of emancipation during the American Civil War.
Human Resource Management (HRM)

HRM 561  Human Resource Management  3 Credit Hours
This course provides managers from different business functions with the principles, knowledge, and techniques for managing employees. Incidents and cases are used to diagnose human resource problems, and design and implement solutions. Topics include: employment law, job design and analysis, performance evaluation, human resource planning, recruitment, selection and assessment, training, managerial development, compensation and incentives, reductions-in-force, collective bargaining and labor relations, and human resource management for international operations. The course stresses the evaluation of human resource programs, and the need for human resource practices to be compatible with one another and to be supportive of the firm’s strategy.
Restriction(s):
Can enroll if Class is Graduate

HRM 611  Staffing Training and Devlpmnt  3 Credit Hours
The course examines the design and management of personnel staffing, selection, training, and development activities as mechanisms for predicting and influencing individual and organizational performance. Key topics to be covered include: staffing strategy and planning; job design and analysis; external and internal recruiting; employee testing and assessment methods; measurement, validation, and decision-making issues in selection; instructional design and delivery; methods for developing employees and managers; career management; laws and regulation affecting staffing and training; evaluation methods for staffing and training activities; and issues in staffing and training of an international workforce.
Prerequisite(s): HRM 561

HRM 613  Management-Union Relations  3 Credit Hours
To study the rationale for, and processes of, union-management relations. Topics include: contract negotiation and administration; processes of organizing and collective bargaining; and content and philosophy of labor-management relations law. A major portion of the course is devoted to a bargaining simulation exercise.
Prerequisite(s): OB 510 or EMGT 545

*  An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Humanities (HUM)

HUM 509  Feminist Theories  3 Credit Hours
This course examines the different perspectives that feminist theorists have offered to analyze the unequal conditions of women’s and men’s lives. Students taking this course will develop an understanding of how theory functions as a way to know, understand and change the world. They will also be provided with a lens for comparing the assumptions and implications of alternative theoretical perspectives. A particular emphasis of this course is on theorizing the interrelationships among gender, race, class, sexuality and nationality. Course material includes applications of feminist theory to issues such as gender identity formation; sexuality; gender, law and citizenship; women and work; and the history and politics of social movements. Students will not receive credit for both HUM 409 and HUM 509. Additional reading assignments or projects will distinguish this course from its undergraduate version.
Prerequisite(s): LIFS 560

HUM 533  Writing Women in Renaissance  3 Credit Hours
This course will be taught in English, and will focus in the influence of Italian literary models for the construction of female literary types as well as female voices in France and Italy from 1300 to about 1600. Italian authors studied include three very influential Florentines, Dante, Petrarch and Boccaccio, as well as Castiglione and Ariosto. We will read women poets, patrons, prostitutes and queens from Italy and France such as Veronica Gambara, Isabella di Morra, Vittoria Colonna, Christine de Pizan, Louise Labe, and Marguerite de Navarre. At issue will be women’s roles and women’s images in city and court culture during the early modern period, and the interaction of their writings with the literary canons of Italy and France. (OC).
Restriction(s):
Can enroll if Class is Graduate

HUM 557  American Cinema  3 Credit Hours
This course will analyze how Hollywood as the nation’s dream factory has manufactured fantasies and cultural myths that have constructed the image of American citizenship, both for Americans and non-Americans. It will establish the ideological function of Hollywood texts as providing unifying symbols for a fragmented society. Students who elect the course for graduate credit will do additional graduate-level work as outlined in the course syllabus.
Prerequisite(s): ENGL 240 ENGL 248 or FILM 248 or HUM 248 or JASS 248
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Indust & Manufac Sys Engin (IMSE)

IMSE 500 Models of Oper Research 3 Credit Hours
The method of mathematical modeling and its application to decision-making problems in organizations. Some widely used models and techniques: linear programming, queuing, inventory, and simulation.
Restriction(s):
Can enroll if Class is Graduate

IMSE 501 Human Factors & Ergonomics 3 Credit Hours
The analysis and prediction of human performance in industrial and other man-machine systems using work sampling, time-motion analysis, synthetic and standard time study, and learning curves, in the design of such systems. Lecture and laboratory. Cannot receive credit for both IMSE 442, and IMSE 501. This class may be scheduled at the same time as the undergraduate course IMSE 442. Graduate students will be required to do additional research paper and/or project.
Prerequisite(s): IMSE 317* or IMSE 510*
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 502 Computer-Integrated Mfg 3 Credit Hours
This course provides basic knowledge of elements in Computer-Integrated Manufacturing Systems, with particular emphasis on Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Computer-Aided Process Planning (CAPP), materials handling, and information flow in manufacturing systems. Hands-on experiments and course projects are required. Two lecture hours and three laboratory hours. Credit cannot be given for both IMSE 483 and IMSE 502. This class may be scheduled at the same time as the undergraduate course IMSE 483. Graduate students will be required to do additional research paper and/or project.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 503 Computer-Aided M/C & Tool Desg 3 Credit Hours
Study of the fundamentals of machine tool design, cutting tools, metal forming dies, and jig fixtures for practical applications in machining and assembly. Principles of design for manufacture and assembly as applied to tool and machine design. Laboratory exercises and projects are required using computer-aided design software. Two lecture hours and three laboratory hours. Credit cannot be given for both IMSE 484 and IMSE 503. This class may be scheduled at the same time as the undergraduate course IMSE 484. Graduate students will be required to do additional research paper and/or project.
Prerequisite(s): IMSE 382 or ME 381
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 504 Metal Forming Processes 3 Credit Hours
This course focuses on the fundamentals of metal forming processes; mechanics of metal forming; formability of manufacture; and the economic aspect of the process. Emphasis is placed on analysis of bulk and sheet metal forming processes as applied to practical cases such as automobile manufacturing. Laboratory and course projects are required. Credit cannot be given for both IMSE 488 and IMSE 504. This class may be scheduled at the same time as the undergraduate course IMSE 488. Graduate students will be required to do additional research paper and/or project.
Prerequisite(s): IMSE 382 or IMSE 381
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 505 Optimization 3 Credit Hours
Prerequisite(s): IMSE 300 or IMSE 500

IMSE 508 Modeling of Large-Scale Sys 3 Credit Hours
The modern and classical concepts and tools required for modeling, analysis and synthesis of large-scale dynamic systems. Topics include system dynamics, interpretive structural modeling, cross-impact analysis, information theory, theory of hierarchical systems. Emphasis is on constructing models of real world problems taken from urban, industrial, transportation, and health care systems. Students are asked to select problems of interest and present final project reports.
Prerequisite(s): IMSE 505 and IMSE 506
IMSE 510  Probability & Statistical Mod  3 Credit Hours
Prerequisite(s): IMSE 317

IMSE 511  Design and Analysis of Exp  3 Credit Hours
One factor, two factor, and multifactor experiments. Fixed random and mixed models. Blocked confounding, incomplete blocks, factorial experiments, fractional factorial experiments. Introduction to response surface analysis.
Prerequisite(s): IMSE 510

IMSE 512  Taguchi Method of Quality Eng  3 Credit Hours
Quality engineering methodology developed by Genichi Taguchi. Design and analysis of experiments using orthogonal arrays and linear graphs. Accumulation analysis for categorized data. Signal-to-noise ratio as a measure of quality characteristics. Simulation using orthogonal arrays. Parameter design for reducing variability around the target without cost increase. Tolerance design for reducing variability with minimum cost increase. Evaluation and improvement of measurement.
Prerequisite(s): IMSE 510

IMSE 513  Robust Design  3 Credit Hours
Students will learn models and methods in the context of overall strategies to empirically study the design of products and manufacturing processes to reduce variability and to reduce sensitivity to parameter variation. Topics include: process capability studies and measures, basic DOE concepts, factorial experiments, evaluating sources of variation, evolutionary operation and adaptive statistical process control.
Prerequisite(s): IMSE 510

IMSE 514  Multivariate Statistics  3 Credit Hours
Linear statistical models used in simple and multiple regression, and analysis of variation. Principles and techniques of principle component analysis are studied and applied to business and engineering problems using statistical computer software. (YR)
Prerequisite(s): IMSE 510

IMSE 515  Fundamentals of Program Mgt  3 Credit Hours
An overview of the project/program management framework and knowledge areas including plan development and execution, scope management, time management, cost management, quality management, human resource management, communications management, risk management, and procurement management. Typical Program Phases and Life Cycles observed in Defense, Construction, Automobile, and Software Industries. Program Organizational Structures, Program Management Processes, and International Project Management are covered. Role of software tools for Program Management and Product Development are discussed. Applications of Lean Product Development Techniques are considered. Cutting waste and lead time in program management are covered. Case studies are used extensively throughout the course.
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Level is Graduate or Professional Development or Rackham

IMSE 516  Project Management and Control  3 Credit Hours
Project Planning, Scheduling, and Controlling functions are discussed in detail including work breakdown structure, CPM and PERT methods, resource allocation and leveling techniques, cost control and minimization, trade-off analysis, learning curves overlapping relationships and concurrent engineering, multiple project execution and optimization. Applications of Lean Techniques in program management are discussed as well as the role of IT in accelerating the product development and reducing the program time. The importance of integrating the Supply Chain in the Product Development is also considered. Case studies and project management software are used throughout the course.
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Level is Graduate or Rackham or Professional Development

IMSE 517  Managing Global Programs  3 Credit Hours
This course focuses on some of the central strategic and organizational problems that arise in managing global programs, including cultural conflicts, developing and managing international managers, global and local brands, and organizing to resolve global-local conflicts. The course uses a combination of case studies, problems, lectures and discussion, over a wide variety of companies and countries.
Prerequisite(s): IMSE 515
Restriction(s):
Can enroll if Level is Professional Development or Graduate or Rackham

IMSE 519  Quan Meth in Quality Engin  3 Credit Hours
This course introduces the advanced quantitative and analytical methods used in quality management, prediction, control and improvement. The topics include sampling design and plan, control charts, statistical quality control, time series, process capability analysis and quality cost analysis. Quality related topics in robust and tolerance design are also included.
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Level is Doctorate or Rackham or Graduate

IMSE 520  Managerial Decision Analysis  3 Credit Hours
Normative decision analysis, decisions, structures, and trees. Utility theory, game theory, and statistical decision theory are introduced. Applications of the theories to management studies in capital investment, bidding, purchasing, and risk analysis are discussed.
Prerequisite(s): IMSE 510

IMSE 5205  Eng Risk-Benefit Analysis  3 Credit Hours
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Class is Post-baccalaureate NCED or Graduate
Can enroll if College is Business

IMSE 521  Mfg Cost Estimation & Control  3 Credit Hours
In this course, concepts of strategic costing in product development and manufacturing are introduced. Engineering economy techniques are used in the study of life cycle cost elements. Equipment acquisition and replacement justification methods under risk and uncertainty are presented.
Restriction(s):
Can enroll if Class is Graduate
IMSE 5215 Program Budget, Cost Est & Control 3 Credit Hours
This course focuses on cost estimation and control for program managers and engineers. The course introduces a systematic approach for applying engineering economy techniques in cost estimating, resource planning, cost planning, cost management and control, and the study of life cycle cost elements. An introduction to decisions under risk and uncertainty as well as an introduction to project crashing are also presented.
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate
Can enroll if Level is Rackham or Professional Development or Graduate
Can enroll if College is Engineering and Computer Science or Business

IMSE 525 Fin & Econ Software Appl 1 Credit Hour
This course applies concepts and techniques of financial management to business and engineering systems case studies. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 application development software suite. (YR).
Prerequisite(s): IMSE 570 and IMSE 571
Corequisite(s): EMGT 510
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 526 Marketing Software Application 1 Credit Hour
This course applies concepts and techniques of marketing management to business and engineering systems case studies. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 application development software suite. (YR).
Prerequisite(s): IMSE 570 and IMSE 571
Corequisite(s): EMGT 535
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 5275 Managerial Acct Software Appl 1 Credit Hour
This course applies concepts and techniques of managerial accounting to business and engineering systems case studies. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 application development software suite. (YR).
Prerequisite(s): IMSE 570 and IMSE 571
Corequisite(s): EMGT 540
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 532 Information for Manufacturing 3 Credit Hours
Acquiring and organizing design and manufacturing information (including geometric modeling, group technology, and automated data acquisition). Identifying kinds needed, sources, and recipients. Ensuring information quality; establishing criteria for selecting processing modes and media. Designing, installing, commissioning, and operating information-handling systems. Handling information in production systems.
Restriction(s):
Can enroll if Class is Graduate

IMSE 533 Manufacturing Systems 3 Credit Hours
This course introduces methodologies and tools for modeling, design and operations planning of manufacturing systems. Topics include introduction to integrated manufacturing systems, manufacturing system and data modeling methodologies, process planning, group technology, manufacturing system layout, scheduling, push and pull production systems. Industrial case studies are presented and discussed.
Restriction(s):
Can enroll if Class is Graduate

IMSE 534 Human Performance Engin in Mfg 3 Credit Hours
The human as a systems component in an information processing context emphasizing capabilities and limitations. The roles of sensing, perception, decision making, short term memory, long term memory, motivation, expectations and attention. An overview of Learning Organization concepts emphasizing personal mastery, mental models, and team learning. A strategy for design of the user-system interface. Analysis methods including functional analysis, traditional and object-oriented task analysis, and cognitive walk-through. Team design project and individual exercises. Emphasis on experiential learning.
Prerequisite(s): IMSE 530
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

IMSE 536 Machinery Diagnostics 3 Credit Hours
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Class is Graduate

IMSE 537 Metal Machining Processes 3 Credit Hours
Detailed study of the principles of conventional and non-traditional metal removing processes, machine tools accuracy, cutting fluids, and cutting tools. The course emphasis will be on the mechanics of metal cutting, machining processes, cutting tool materials and tool geometry, selection of cutting conditions, planning for machining and optimization of manufacturing process. Role of numerical control in improving machining process and productivity of manufacturing system.
Prerequisite(s): ME 381 or IMSE 382 or AENG 587

IMSE 538 Intelligent Manufacturing 3 Credit Hours
A comprehensive and integrated approach to topics associated with the science of artificial intelligence and their role in today's manufacturing environments. Design and management issues including information systems in an automated and integrated manufacturing environment.
Prerequisite(s): IMSE 317
Restriction(s):
Can enroll if Class is Graduate
IMSE 543  Industrial Ergonomics  3 Credit Hours
Effective ergonomic interventions in industrial environment enhance productivity, safety and job satisfaction. This course introduces engineers and engineering students how to apply ergonomic principles in designing industrial and manufacturing operations in which people play a significant role, so that human capabilities are maximized, physical fatigue is minimized, and performance is optimized. Case studies and topics emphasize industrial applications.
Prerequisite(s): IMSE 442
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 544  Industrial Biomechanics  3 Credit Hours
This course introduces the mechanical behavior of the musculoskeletal systems as related to physical work activities. Fundamentals of human body mechanics (Kinetic and Kinematic aspects of locomotion, body link systems, muscle strength and performance), muscle fatigue and musculoskeletal injury mechanism are covered with application to design of physical work activities and equipment. (YR).
Prerequisite(s): IMSE 442
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 545  Vehicle Ergonomics I  3 Credit Hours
Prerequisite(s): IMSE 442
Restriction(s):
Can enroll if Class is Graduate

IMSE 546  Safety Engineering  3 Credit Hours
Safety requirements for production processes, equipment, and plants; organization and administration of safety programs, current safety laws, current occupational safety research.
Prerequisite(s): IMSE 442

IMSE 548  Human Factors  3 Credit Hours
This course covers principals and guidelines of Human Factors and Ergonomics (HFE) practices applied to complex human machine systems. The emphasis is on understanding advanced HFE assessment and surveillance methods in describing and quantifying human-machine-environment interaction. Key topics include, human modeling and simulation, information processing and related motor behavior, and ergonomics design and evaluation tools.
Prerequisite(s): IMSE 442

IMSE 549  Product Design and Evaluation  3 Credit Hours
Design approaches and processes used in developing customer/user-oriented products. Study of widely used product evaluation techniques: methods of observation, communication and experimentation; subjective (e.g., psychological scaling) and objective measurement methods. Review of product design and evaluation case studies. Laboratory projects to evaluate several products.
Prerequisite(s): IMSE 442

IMSE 550  Data Management  3 Credit Hours
Topics in computer organization; principle data structures (stacks, trees, linked lists) and their use; searching and sorting; algorithm specification, and recursion. Programming assignments will deal with applications of these subjects.

IMSE 551  Compiler Construction  3 Credit Hours
The design and construction of compilers and programming systems. Lexical scan; parsing techniques; code generation and optimization; storage allocation. Applications of formal language theory in compiler design. Translator writing systems; XPL.
Prerequisite(s): IMSE 550

IMSE 552  Design/Analysis of Algorithms  3 Credit Hours
Design, evaluation, and communication of algorithms for solving problems using a digital computer. Topics include problem-solving approaches, algorithm notation, determination of algorithm correctness, measures of efficiency, improvement of algorithms. Examples and homework in designing algorithms for data processing, scheduling, combinatorial optimization, and elementary computer graphics, and numerical analysis.
Prerequisite(s): IMSE 550

IMSE 553  Software Engineering  3 Credit Hours
Program design methodologies; control flow and data flow in programs; program measurement. Software life cycle; large program design, development, testing, and maintenance. Software reliability and fault-tolerance. Evolution dynamics of software.
Prerequisite(s): IMSE 550

IMSE 554  Management Info Systems  3 Credit Hours
Basic systems concepts, role of a system analyst in an information system, systems investigation, feasibility study, output/input design, hardware/software evaluation and selection, data management, security considerations, systems implementation, information systems documents, systems projects estimation and control. Students will be asked to develop a complete information system from case studies.
Prerequisite(s): IMSE 454

IMSE 555  Decision Support/Expert Sys  3 Credit Hours
Decision support process and decision support systems, development tools, executive support systems, expert systems and their development processes, expert shells, integration of decision support and expert systems.
Prerequisite(s): IMSE 350

IMSE 556  Database Systems  3 Credit Hours
Data structures and file processing; GUIDE and CODASYL reports; comparisons among the database management systems, relational, hierarchical, and network approaches; system design guidelines; DDL and Schema/Subschema; DML and Query language.

IMSE 557  Comp Networks and Comm  3 Credit Hours
To study the nature of computing communication and distributing processing techniques, compare networking options, introduce specific business applications that require data communication and networks, and examine the role of communication software in the system, and discuss the related management issues.
Prerequisite(s): IMSE 454

IMSE 5585  Electronic Commerce  3 Credit Hours
This course examines how new information technologies and networks affect the exchange of goods and services between buyers and sellers in firms. What are economics of different electronic commerce models for firms? The course combines critical evaluation of business strategies with hands-on experience in building supporting electronic commerce systems utilizing electronic data interchange (EDI) software. (YR).
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
IMSE 559  System Simulation  3 Credit Hours
The modeling and simulation of discrete-change, continuous-change and combined-change stochastic systems. Conducting simulation studies using contemporary software such as SLAM II or random number generation, distribution sampling, and output analysis. Comparisons with analytical queuing models.
Prerequisite(s): IMSE 510

IMSE 561  Tot Qual Mgmt and Six Sigma  3 Credit Hours
This course covers implementing Total Quality Management (TQM), undertaking Six Sigma Projects, and applying Baldridge National Quality Award criteria and ISO 9000 principles to improve quality performances in an organization. Topics include Definitions and Importance of Quality, Quality Costs, Quality Function Deployment (QFD), Product Specification and Critical-to-quality Measures (CQM). Statistical Quality Control (SQC), Robustness Concepts, Quality System Design and Evaluation. Six Sigma and DMAIC Methodologies, Design for Six Sigma (DFSS) process, IDOV (identity requirements, Design alternatives, Optimize the design and Verify process capability) Methodology, and several other concepts and tools related to quality are also covered.
Prerequisite(s): IMSE 510
Restriction(s):
Can enroll if Class is Graduate

IMSE 564  ABAP/4 Programming  3 Credit Hours
Students will explore different technology tools and methodologies for building/customizing applications in ERP systems to meet business need of an Enterprise. Extensive software design and development activities will be covered using modular/Object Oriented Programming, Data Modeling, Data Dictionary, Database Access, User Interface, Dialogue Programming, Interactive Report Design using appropriate tools such as, ABAP Workbench, SAP HANA Native Application Development, and SAP Project Implementation phases.
Prerequisite(s): IMSE 570 and (IMSE 556 or CIS 556)
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 565  Supply Chain Management  3 Credit Hours
This course will address theories, concepts, models, methodologies and techniques for managing a supply chain. Topics include supply chain strategy, drivers and metrics of performance, designing global and regional supply chain networks using optimization models, planning demand and supply in a supply chain using forecasting, aggregate planning, and inventory optimization models, designing the transportation systems, pricing, and employing IT systems effectively in supply chains.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 567  Reliability Analysis  3 Credit Hours
Statistics of reliability and life testing. Application of stochastic models for failure based on Poisson and related processes. Use of exponential and extreme value distribution in reliability. Use of Markov process in the areas of equipment reliability, maintenance and availability.
Prerequisite(s): IMSE 510

IMSE 569  Sys Simulation in Auto Engin  3 Credit Hours
The modeling and simulation of discrete, continuous and combined change stochastic systems. Conducting simulation studies using contemporary software such as ARENA and WITNESS. Topics in simulation methodology include random number generation, distribution sampling, input and output analysis. Integration techniques for continuous simulation, application to design of manufacturing and automotive systems.
Prerequisite(s): IMSE 510

IMSE 570  Enterprise Information Systems  3 Credit Hours
The purpose of this course is to provide a foundation for the analysis, design and implementation of enterprise information systems. Topics include systems and organization theories, and information systems planning and evaluation. Students will be also introduced to various systems development life cycle phases of an enterprise information system. Students will acquire an understanding of the flow of information (forecasts, financial, accounting and operational data) within an enterprise and the factors that should be considered in designing an integrated enterprise information system. This includes all systems in the business cycle from revenue forecasts, production planning, inventory management, logistics, manufacturing, accounts payable, sales, accounts receivable, payroll, general ledger and report generation. Specifications for some of these systems will be developed utilizing ERP software such as SAP R/3 application development software suite.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 571  Modeling of Int Info Syst  3 Credit Hours
A review of approaches for modeling of integrated information systems. ARIS architecture. Data, control, function, and organization views of an information system. Requirements definition, design specification, and implementation definition of the different views. Process chain diagrams. Management of ERP projects. (YR).
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 572  Object Oriented System Design  3 Credit Hours
Students will be introduced to fundamental concepts and methods of object oriented design and development. Topics that will be covered include object oriented database concepts, data models, schema design (conceptual schemas and physical schemas), query languages, physical storage of objects and indexes on objects, version management, schema evolution and systems issues such as concurrent control and recovery from failure. For application programming, a programming language such as C++ will be used for database design and query language. (YR).
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
IMSE 574  IS Based Prod Planning & Cont  3 Credit Hours
Students will be introduced to theories, models, methods and techniques in demand forecasting, inventory management, capacity planning, production scheduling and management components, in production planning and control for an enterprise. Application systems to model information sharing between these components will be developed using ERP software such as the SAP R/3 application development software suite. (YR).
Prerequisite(s): IMSE 510 and IMSE 570 and IMSE 571
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

IMSE 5755  Bus Proc Int using Entpr Tech  3 Credit Hours
Full Title: Business Process Integration using Enterprise Technology
This course introduces the concept of integration, optimization and configuration of strategic business processes across the enterprise using ERP software technology. Use cases and specifications for some of these systems are introduced in different functional areas, such as Finance, Human Capital Management, Logistics, and Project Systems utilizing ERP software. (F)
Restriction(s):
Can enroll if Level is Rackham or Graduate

IMSE 577  User Interface Des & Analis  3 Credit Hours
Current theory and design techniques concerning how user interfaces for systems should be designed to be easy to learn and use. Focus on cognitive factors, such as the amount of learning required, and the information-processing load imposed on the user. Emphasis will be on integrating multimedia in the user interface.
Prerequisite(s): CIS 553
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Doctorate or Graduate

IMSE 579  Software Int Mfg & Logis Mgmt  3 Credit Hours
Students will be introduced to theories, models and techniques in manufacturing, logistics components and their interaction within an enterprise. Topics that will be covered include production/shop order analysis and management, capacity planning, and materials planning and inventory management. Application systems to model information sharing between these components will be developed using ERP software such as the SAP R/3 application development suite. (YR).
Prerequisite(s): IMSE 510 and IMSE 570 and (IMSE 571 or IMSE 5715)
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

IMSE 580  Prod & Oper Engineering I  3 Credit Hours
Production and operations management techniques including forecasting, inventory control, MRP, detailed scheduling, aggregate planning, process variability and its effects on throughput and inventory, factory physics principles, and lean methods.
Prerequisite(s): IMSE 510

IMSE 581  Prod & Oper Engineering II  3 Credit Hours
This course addresses the advanced theory and techniques of production and inventory systems. Topics include advanced forecasting methods, production scheduling and lot-sizing, stochastic single-and multi-item inventory systems, and service operations. This course also includes discussions of research articles on production and inventory systems.
Prerequisite(s): IMSE 580 or EMGT 520

IMSE 5825  Industrial Controls  3 Credit Hours
This course introduces the principle aspects of computers and their applications in systems control, principles of automation, with emphasis on manufacturing industries. Discussion on the hardware and software associated with this task and other topics such as integrated systems modeling, sensor technologies, digital and analog signal processing and control, and information communication are also included. Laboratory exercises and projects are required. Credit cannot be given for both IMSE 482 and IMSE 5825. This class may be scheduled at the same time as the undergraduate course IMSE 482. Graduate students will be required to do additional research paper and/or project.
Prerequisite(s): ECE 305
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Graduate

IMSE 583  Concurrent Design &Manufacture  3 Credit Hours
This course will cover topics in manufacturing design and analysis with emphasis on the parallel design of product and processes. Topics include principles of design theory, concurrent engineering, group technology, cost estimating, assembly systems, and design for assembly and manufacture. Design projects using computer tools are required on a team-oriented basis.
Prerequisite(s): IMSE 382

IMSE 584  Logistical Systems  3 Credit Hours
Introduction to concepts of physical distribution and logistics management. Quantitative treatment of topics in materials management, transportation, forecasting, warehouse location. Logistical system design techniques which synthesize the above topics in order to design a fundamental system.
Prerequisite(s): IMSE 580

IMSE 585  Material Handling Systems  3 Credit Hours
Studies of material handling methods and equipment, study of techniques used in the analysis and design of material handling systems, study of storage and warehousing systems.
Prerequisite(s): IMSE 500

IMSE 586  Big Data Anal & Visualiztn  3 Credit Hours
Topics covered include Big Data's role in engineering, Data Visualization and Infographics Design Principles, Univariate, Bivariate and Multivariate Data Visualization, Visualization Groups, Clustering Distance Measures, Hierarchical, Partition-Based and Fuzzy Clustering. Predictive Analytics using Principal Component Analysis, Multivariate Linear Regression, Discriminant Analysis, and Logistic Regression. Software Tools and Techniques for Visualization and Data Analytics such as Tableau, SAS VA, Pentaho and R. (F)
Prerequisite(s): IMSE 510

IMSE 587  Facilities Planning  3 Credit Hours
Analysis, planning and design of physical facilities utilizing operations research, engineering and economic principles. Synthesis of physical plant equipment and man into an integrated system for either service or manufacturing activities. Design of material handling systems. Students are required to select problems of interest and present design project reports. Credit may not be given for both IMSE 474 and IMSE 587. This class may be scheduled at the same time as the undergraduate course IMSE 474. Graduate students will be required to do additional research paper and/or project.
Prerequisite(s): IMSE 500
**IMSE 588**  Bldg High Perf Learning Org  3 Credit Hours  
The purpose of this course is to develop students’ knowledge and skills to explore and experience how the disciplines of systems thinking, personal mastery, mental models, team learning and shared vision impact on organizational learning and influence management practices for building highly performing organizations.

**IMSE 590**  Grad Study in Sel Topics I  1 to 3 Credit Hours  
Individual or group of selected topics in industrial and systems engineering.  
Restriction(s):  
Can enroll if Class is Graduate

**IMSE 591**  Grad Study in Sel Topics II  1 to 3 Credit Hours  
Continuation of IMSE 590.  
Restriction(s):  
Can enroll if Class is Graduate

**IMSE 593**  Vehicle Package Engineering  3 Credit Hours  
Vehicle package specifications related to exterior and interior design reference points, dimensions and curb loadings. Benchmarking package studies, ergonomic tools and design practices used in the automobile industry. Driver positioning considerations; seat height, heel points, hip points, steering wheel location, seat pan, and back angles. Pedal design issues, gear shift positioning. Visibility of instrument panel space. Armrest and console design considerations. Principles and considerations in selecting and location types and characteristics of controls and displays on instrument panels, doors, consoles, and headers. Engine compartment packaging issues. Perception of interior spaciousness and visibility of the road over cowl and hood.  
Restriction(s):  
Can enroll if Class is Graduate

**IMSE 600**  Research in IMSE  1 to 3 Credit Hours  
Individual or group study or research in a field of interest to the student. Topics may be chosen from any of the areas of industrial and systems engineering. The student will submit a project report and give an oral presentation at the close of the term.  
Restriction(s):  
Can enroll if Class is Graduate

**IMSE 605**  Advanced Optimization  3 Credit Hours  
This course will cover selected advanced optimization methods for engineering disciplines and information systems. Topics include nonlinear programming, network optimization, dynamic programming and optimal control. Theories related to optimality and convergence, population-based optimization, etc. will be covered. Students will be expected to write computer program code to implement optimization methodologies.  
Prerequisite(s): IMSE 500

**IMSE 606**  Advanced Stochastic Processes  3 Credit Hours  
This course introduces the theory and applications of discrete and continuous stochastic processes and models. The topics include Poisson process, renewal theory, discrete-time and continuous-time Markov chains, martingales, random walks, and Brownian motion. Other Markov processes with applications to queuing, simulation, and operations research in manufacturing and service systems will also be covered.  
Prerequisite(s): IMSE 510

**IMSE 659**  Advanced System Simulation  3 Credit Hours  
Simulation with animation packages using contemporary software such as SIMAN/CINEMA or SLAM/TESS. Topics in simulation methodology: random number generation and testing, distribution sampling, validation are reviewed. Emphasis on output analysis, design of simulation experiments, variance reduction techniques, expert systems in simulation.  
Prerequisite(s): IMSE 459 and IMSE 559

**IMSE 682**  Seminar in Comp Proc Contl  3 Credit Hours  
Advanced treatment of the design of process control systems with emphasis on the modeling of a process of computer control and the design and analysis of a control strategy. Each student is expected to select a project and design and program the control strategy or support software on a mini-computer.  
Prerequisite(s): IMSE 582

**IMSE 699**  Master's Thesis Project  1 to 6 Credit Hours  
Graduate students electing this course, while working under the general supervision of a member of the department faculty, are expected to plan and conduct the work themselves, to submit a thesis for review and approval, and to present an oral defense of the thesis.  
Restriction(s):  
Can enroll if Class is Graduate

**IMSE 980**  Ph.D. diss research precand  1 to 9 Credit Hours  
Full Title: Ph.D. dissertation research pre-candidate Dissertation research by a pre-candidate student of the Ph.D. in Industrial and Systems Engineering (I&SE) Program conducted under guidance of the faculty advisor. The credits earned in this dissertation research course count towards (fulfill) 24 credit hours of dissertation research requirements of the Ph.D. I&SE program. (F,W,S)  
Restriction(s):  
Can enroll if Level is Doctorate  
Can enroll if Major is Industrial & Systems Engin

**IMSE 990**  Ph.D. diss research cand  1 to 9 Credit Hours  
Full Title: Ph.D. dissertation research candidate Dissertation research by a candidate student of the Ph.D. in Industrial and Systems Engineering Program conducted under guidance of the faculty advisor. (F,W,S)  
Restriction(s):  
Can enroll if Level is Doctorate  
Can enroll if Major is Industrial & Systems Engin

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:  
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Information Sys Engineering (ISE)

ISE 798 Doctoral Seminar 0 Credit Hours
After attaining candidacy every Ph.D. student is required to attend and actively participate in seminars each semester until graduation. In addition, each Ph.D. student is required to present a one hour seminar about his/her research or an assigned research topic, and lead a follow-up discussion on the future trends in his/her field.

Corequisite(s): ISE 990
Restriction(s):
Can enroll if Class is Doctorate
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Information Sys Engineering

ISE 990 Doctoral Dissertation 1 to 9 Credit Hours
Dissertation work by a Ph.D. student who has been admitted to the candidacy status. The student must be registered during the semester of the dissertation defense. (1 to 9 credit hours per semester)

Restriction(s):
Can enroll if Class is Doctorate
Can enroll if Level is Doctorate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Information Sys Engineering

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Journalism and Screen Studies (JASS)

JASS 503 Issues in Cyberspace 3 Credit Hours
This course will explore some of the current social, political, legal, and technological issues associated with the use of new media technology to move ideas and information in a democratic society. Examples of areas to be explored include the Internet and World Wide Web, privacy, the future of the mass audience, and the meaning of the First Amendment in the 21st century. (YR).

Restriction(s):
Can enroll if Level is Graduate or Rackham

JASS 506 History & Theory of Documentary 3 Credit Hours
This course surveys the history of European and American documentary and explores its ethical, aesthetic, legal and economic issues. Students study documentary's central moments, forms and artists; the changing theoretical approaches to documentary making; and the range of documentary purposes (informational, educational, propagandistic, entertainment). The course also provides historical and theoretical background for those students who wish to pursue their interest in documentary in the script-writing and production courses also offered in the Communications (Journalism and Screen Studies) Discipline. The graduate course includes a substantial additional research paper, for example on one particular documentary producer, on ethical issues in documentary or on the use of documentary as a political tool.

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

Restriction(s):
Can enroll if Level is Rackham or Graduate

JASS 536 Memoir and Travel Writing 3 Credit Hours
A course in narrative nonfiction that focuses on memoir and travel writing. Reading involves several books as well as classic essay-length examples. Assignments include both short and analytical papers and the writing and revising of three original articles, based on research, interviews, memory, and observation, and drawing on literary techniques.

In addition to these assignments, graduate students must prepare a substantial critical analysis focusing on a particular writer or theme, and present their work to the class as well as in writing. (YR).

Prerequisite(s): COMP 106 or COMP 220 or COMP 270 or CPAS with a score of 40 or COMP 280

Restriction(s):
Can enroll if Level is Rackham or Graduate

JASS 557 American Cinema 3 Credit Hours
This course will analyze how Hollywood as the nation’s dream factory has manufactured fantasies and cultural myths that have constructed the image of American citizenship, both for Americans and non-Americans. It will establish the ideological function of Hollywood texts as providing unifying symbols for a fragmented society. Students who elect the course for graduate credit will do additional graduate-level work as outlined in the course syllabus.

Prerequisite(s): ENGL 248 or HUM 248 or JASS 248

Restriction(s):
Can enroll if Level is Rackham or Graduate

JASS 577 Ethnographic Film 3 Credit Hours
This course will analyze ethnographic films as a medium for the construction of meaning in and across cultures. It will teach students to understand how putatively “real” content of documentary film creates a mixture of fantasy, news and “science”. Covering texts as varied as National Geographic photographic layouts, traditional ethnographic films made by ethnographers, and auto-ethnographies of cultural groups such as Native Americans and the Trobriand Islanders of Papua New Guinea, the course will aim to deconstruct such oppositions as indigene vs. alien, us vs. them, and self vs. other. (AY)

Prerequisite(s): ENGL 248 or HUM 248 or JASS 248 or ANTH 101

Restriction(s):
Can enroll if Level is Rackham or Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
**Law & Environment (LE)**

**LE 510 Commercial Transactions 3 Credit Hours**

This course provides both the content and context needed to understand the legal impact of business decisions with particular emphasis on commercial transactions. Topics include law of contracts and sales, commercial paper, secured transactions, and debtor-creditors relationships. Student completing LE 453 or equivalent may waive LE 510.

**Restriction(s):**
Can enroll if Class is Graduate

**LE 523 Legal Environment for Managers 3 Credit Hours**

This course equips the student to develop a logical approach to problem solving based on critical legal thinking, sound business judgment, and ethical considerations. The student will be introduced to the principal ways the law is made and enforced, including the development of the common law, statutory interpretation, and agency processes. The course surveys the impact of regulation on the relationships between the business and its customers, suppliers, products or services, employees, and owners. Graduate standing required.

**Restriction(s):**
Can enroll if Class is Graduate

**LE 556 Business Govt&Regulatory Env 3 Credit Hours**

This course focuses on an interdisciplinary approach to the evaluation of contemporary business issues utilizing elements of law, political economy, international business, ethics, social responsibility and management. Heavy emphasis is placed on case analysis and the development of legal research and critical thinking skills. The goals of the course are to enhance student awareness of the societal influences on business; establish the context from which government regulation arises; and, explore the roles of the free market, government intervention, and individual and corporate ethics in affecting business behavior. Credit not given for more than one of: LE 556, LE 649, BA 649. (F,W,S)

**Prerequisite(s):** BE 530 or BE 504

**LE 606 Legal Environment for Managers 3 Credit Hours**

This course equips the student to develop a logical approach to problem solving based on critical legal thinking, sound business judgement, and ethical considerations. The student will be introduced to the principle ways that law is made and enforced, including the development of the common law, statutory interpretation, and agency processes. The course surveys the impact of regulation on the relationships between the business and its customers, suppliers, products or services, employees, and owners. (AY)

**Restriction(s):**
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

---

**Liberal Studies (LIBS)**

**LIBS 528 Roman Art and Memory 3 Credit Hours**

In this course, we examine Roman art closely associated with personal commemoration and cultural memory, including portraiture, funerary monuments, imperial monuments, and public architecture. We explore these objects? relationship to Roman literary culture? theories of mnemotechnics, and in the social context of the Roman obsession with memory perpetuation. We also examine how art historians apply modern theories of collective and social memory in their scholarship on Roman art, creating new ways of understanding Roman sculpture, painting, and architecture. Finally, we investigate Roman spectacle and performance as a vehicle of cultural memory. Graduate students enrolled in this seminar will be exposed in greater depth to the theoretical and historiographical scholarship of cultural and collective memory, as well as to current topics in Roman art. Graduate students are responsible for additional reading assignments and more lengthy and substantial oral presentations and final papers, as outlined below. Students cannot earn credit for both ARTH 428 and ARTH/LIBS 528.

**Prerequisite(s):** ARTH 101 or ARTH 102 or ARTH 103 or ARTH 104 or ARTH 106

**Restriction(s):** Can enroll if Class is Graduate

**LIBS 536 Memoir and Travel Writing 3 Credit Hours**

A course in narrative nonfiction that focuses on memoir and travel writing. Reading involves several books as well as classic essay-length examples. Assignments include both short and analytical papers and the writing and revising of three original articles, based on research, interviews, memory, and observation, and drawing on literary techniques. In addition to these assignments, graduate students must prepare a substantial critical analysis focusing on a particular writer or theme, and present their work to the class as well as in writing. (YR).

**Prerequisite(s):** LIBS 560

**Restriction(s):** Can enroll if Level is Graduate

**LIBS 560 Foundations in Liberal Studies 3 to 6 Credit Hours**

This course is mandatory for students entering the MALs program. It will introduce students to the understanding of advanced liberal studies and to graduate-level interdisciplinary skills and methodologies.

**Restriction(s):**
Can enroll if Class is Graduate
Can enroll if Major is Liberal Studies

**LIBS 561 Self and Society 3 Credit Hours**

This seminar examines various facets of autobiography and memoir within the context of historical and contemporary cultures. Drawing on texts from Europe, Africa, Asia, and North America, the seminar analyzes the purpose of self-narrative and explores the cultural patterning of individual experience and literary discourse. (YR).

**Prerequisite(s):** LIBS 560

**Restriction(s):**
Can enroll if Class is Graduate
Can enroll if Major is Liberal Studies
LIBS 562 Postmodernism and Truth 3 Credit Hours
Examines the development in the last 20 years of the emergence of "postmodern" scholarship in a number of fields in the natural and social sciences, humanities, and popular culture; considers how in each case these approaches seem to challenge the authority of single explanations and absolute truth. Addresses issues such as diversity in cultures; why cultural pressures produce new forms of relativism; the dynamics of race and gender in intercultural clashes; and the interplay of strongly held values and toleration. Course format will require close reading of complex texts and responses to them in class discussion.
Prerequisite(s): LIBS 560

LIBS 563 New World Cultures 3 Credit Hours
This is a MALS Core Seminar that will focus on the topic of crosscultural encounters in the Atlantic from the advent of the Atlantic slave trade to the emancipation of slaves in the western hemisphere. Course will stress interdisciplinary approaches to the topic, including economics, history, and anthropology. (YR).
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate

LIBS 564 Literature & Science Studies 3 Credit Hours
An introduction to the humanistic study of science using works of literature and the techniques of literary, historical, sociological, philosophical, cultural, feminist and rhetorical analysis. Additional assignments will distinguish this course from its undergraduate version.
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate

LIBS 566 Investigating Academic Literacy 3 Credit Hours
Intensive investigation of, and practice with, writing and research skills required for graduate-level work. Through regular assignments, guided reading of a variety of texts, and intensive work with instructor/s and one another, students will explore what it means to produce academic discourse, learn its conventions, and develop skills in written analysis. Additional assignments will distinguish this course from its undergraduate version.(YR).
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate

LIBS 567 The Self in Philosophy & Lit 3 Credit Hours
This course will utilize both philosophical and literary texts to examine the nature of the self. We will explore the self's inwardness, its relation to others, its capacity for self-knowledge and self-deception, its connection to gender, its desire to disown itself and finally its relation to death. The philosophical texts will provide theoretical structures within which to both experience and discuss the literary texts. Additional assignments will distinguish this course from its undergraduate version.
Prerequisite(s): LIBS 560

LIBS 568 Religion & Society 3 Credit Hours
The course will focus upon how social scientists examine the role of religion in public life. It will examine several religious organizations or communities or religious-based ideologies. The format of the class will be to read primary source materials or research studies and discuss them. This is not a class in theology or faith. (OC).
Prerequisite(s): LIBS 560

LIBS 569 The Texture of Memory 3 Credit Hours
This seminar will examine theories of individual, collective, and cultural memory and their practical application. In addition, we will read three major novels in which the authors explore memory in its various forms. We will begin the semester by examining the ways in which clinical psychologists have looked at memory versus the ways in which social constructivists and psychologists have viewed memory. In our examination, we will try to find some points of intersection between the two groups. This will provide the framework for further explorations of memory and the study of constructions of memory and their uses and abuses. We will focus on the ways in which memory has been conceptualized in the disciplines of art history, history, literary criticism, Holocaust studies, sociology, and psychology, as well as the interdisciplinary field of cultural studies. (OC).
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Degree is Master of Arts Liberal Studies

LIBS 570 History of Warfare, 1500-2000 3 Credit Hours
A History of Warfare during the Age of Gunpowder offers a summary of human strife from approximately 1500 to the present. Drawing on a series of diverse sources - including analytical assessments by eminent contemporary historians, eyewitness accounts by combatants, and cinematic representations of warfare - this course seeks to explore the origins of human conflict, its evolution during the past 500 years, and its future, if any. (OC).
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate

LIBS 571 Science & Philosophy of Emotion 3 Credit Hours
This course will examine how past philosophers and psychologists analyzed emotions to set the stage for an examination of more recent work on emotions being produced in philosophy, psychology, and neuroscience. This course will use these analyses to explore the following topics: the relationship of emotions to reason, memory, and morality, and the overall role of emotions in our relationship to ourselves and to others. Additional assignments will distinguish this course from its undergraduate version.
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate

LIBS 572 Migrations of the Holy 3 Credit Hours
This course will probe the dynamic shifts in religious subjectivity that mark the years ranging from the early Christian centuries (first and second centuries AD) to the end of the Middle Ages (1500 AD). It will attend mainly to the evidence to be found in the literary record of these two sequential periods, and will be concerned with examining a wide variety of topics, such as the formation of orthodox belief, the challenges posed by apostate and heretical sects, competing modes of ascetic life and practices, the power struggles between secular and ecclesiastical authority, and the rise of mysticism and affective piety. The course will demand close analysis and comparison of texts in class discussion as well as in written assignments.
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate
**LIBS 575  Making Modern Science  3 Credit Hours**

This seminar will explore how science became a defining feature of modern life around the world in the last five centuries. We will study the so-called "Scientific Revolution" in a global context in relation to other forms of belief, such as religion and magic, and changes in human society at large. By critically studying theoretical texts, primary sources, and secondary materials tied to the emergence of the modern sciences, the seminar will challenge participants to examine their assumptions and presuppositions about what science is, how science was in the past, how science has been done, and what its history should be. We will discover how people in different cultures made knowledge of the natural world in pre-modern times, and examine why some ways of making natural knowledge became more reliable and widespread than others in recent centuries.

**Prerequisite(s):** LIBS 560

**LIBS 580  Gender, Culture and Identity  3 Credit Hours**

This is a course about how scholars analyze women, gender, and feminist theories. It introduces students to key questions about gender and the principal methods for studying them. It will serve as a forum for building and testing theories on the totality of women's experience. Additional assignments will distinguish this course from its undergraduate version. (YR).

**Prerequisite(s):** LIBS 560

**LIBS 581  Aspects of Greek Culture  3 Credit Hours**

This course will introduce students to key topics in the study of Greek culture and language, with a review of major theories and issues concerning the relationship between ecological and economic systems. Topics include these questions: What is the purpose of economic activity? How important is the preservation of the natural world compared to the production of economic goods? How do principles of social and intergenerational equity affect the use of resources and choice of goods to be produced? The course utilizes a transdisciplinary approach in the development of new models where conventional economics and ecology alone have been ineffective in addressing questions of sustainability and equity. (OC).

**Prerequisite(s):** LIBS 560

**LIBS 582  Eur Ideas in American Culture  3 Credit Hours**

This course will introduce students to key topics in modern western culture, with focus specifically on the role played by European ideas in the creation of American culture from the eighteenth century to the present. Organized around three case studies of European intellectual influences on America using the writings of John Locke, Charles Darwin, and Sigmund Freud. (OC)

**Prerequisite(s):** LIBS 560

**LIBS 583  Early Mod Era/New & Old World  3 Credit Hours**

This is a course on the history of the early modern West from multiple perspectives, with special emphasis on the role played by the Old and New World, together, in the creation of the modern. Course fulfills the Liberal Studies track core seminar requirement. (OC).

**Prerequisite(s):** LIBS 560

**LIBS 584  ENST: Concepts and Philosophy  3 Credit Hours**

An extensive and intensive analysis of the roots of environmental studies. Environmental studies becomes meta-disciplinary as it makes connections between the traditional disciplines in the natural sciences, social sciences, humanities, and technological sciences when dealing with current environmental issues. The students will examine and discuss the philosophical, scientific, social, and religious basis of the environmental movements through classical and contemporary readings. Possible topics will include: views of nature, sustainability, carrying capacity, management of commons, the environment of cities, and developing a sense of place. Additional assignments will distinguish this course from its undergraduate version.

**Prerequisite(s):** LIBS 560

**LIBS 585  Watershed Analysis  3 Credit Hours**

An interdisciplinary study of watersheds, the most commonly used bioregional unit. The course will integrate the analysis of many factors which contribute to the character of watersheds, including bedrock and surficial geology, surface and groundwater hydrology, social history, land use history, water quality analysis, biological diversity, laws and regulations, management models, drinking water and wastewater systems, best management practices, and educational programs. The Rouge River Watershed will serve as the primary case study. Additional assignments will distinguish this course from its undergraduate version. (YR).

**Prerequisite(s):** LIBS 560

**LIBS 586  Ecological Economics  3 Credit Hours**

A review of major theories and issues concerning the relationship between ecological and economic systems. Topics include these questions: What is the purpose of economic activity? How important is the preservation of the natural world compared to the production of economic goods? How do principles of social and intergenerational equity affect the use of resources and choice of goods to be produced? The course utilizes a transdisciplinary approach in the development of new models where conventional economics and ecology alone have been ineffective in addressing questions of sustainability and equity. (OC).

**Prerequisite(s):** LIBS 560

**LIBS 587  Women and Public Spaces  3 Credit Hours**

Despite old and persistent myths of a woman’s place being in the home, women in America have consistently maintained a presence in public spaces. Their participation, however, was not unfettered. Laws, social mores, familial and religious restraints, etiquette, the threat of violence, lack of funds, and other factors influenced and restricted women’s behavior when in public and structured society’s reactions to their presence. This course will consider the development of these codes of behavior, formal and informal, how women of different ethnicities, races, sexual orientations, and classes experienced their effects, and the ways in which women sought to temper and undermine the system, particularly in the 20th century. This course will provide an interdisciplinary approach to historic, social physical, economic, and cultural geographies through which women have traveled. Readings will consider the scholarship generated by urban geographers, historians, sociologists, anthropologists, literary critics, economists, novelists, and journalists. Additional assignments will distinguish this course from its undergraduate version. (OC)

**Prerequisite(s):** LIBS 560

**LIBS 588  Creative Class/Working Class  3 Credit Hours**

In this course we will explore changing conceptions of work and its impact on urban redevelopment policies. The issue will be set within a larger theme: the relationship between work and creativity. We begin with a review of writings by Adam Smith, Karl Marx, Max Weber, Karl Polanyi, E. P. Thompson and others on the history and concept of work as a specific form of productive human activity. We will then critically examine the nature of the shift from manufacturing to services and the emergence of a new, knowledge-based system of production. Specific policies aimed at recruiting members of the "creative class" to live and work in "cool cities" - Michigan's cool cities initiative, for example - will be examined and critically evaluated. (OC)

**Prerequisite(s):** LIBS 560

**Restriction(s):**

Can enroll if Class is Graduate
LIBS 599 Independent Studies - MALS 1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MALS program to pursue independent research under the direction of a graduate faculty member. Project must be defined in advance, in writing, and must be appropriate to the student's chosen track. It must be designed to produce a scholarly paper or papers which reflect significant results from the course.
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Liberal Studies

LIBS 690 Topics in Liberal Studies 3 Credit Hours
Presents topics of current interest in graduate liberal studies. Topics vary from term to term. (OC).
Prerequisite(s): LIBS 560
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Program is MALS-Liberal Studies

LIBS 690A Topics in Liberal Studies 3 Credit Hours
TOPIC: Western Tradition: the Judeo-Christian and the Greek. Students taking this class will begin to consider some of the issues of human and Western Culture; establish a core of language, literature, and ideas to use in discussing Western culture; and evolve a series of recurring questions about Western tradition. The course examines two strands of the Western tradition: the Judeo-Christian and the Greek. It establishes the foundation for subsequent courses in the Liberal Studies Track. (OC)

LIBS 690B Topics in Liberal Studies 3 Credit Hours
Topic: Environmental Economics. Examines economic issues involving the physical environment in which we all live.
Restriction(s):
Can enroll if Class is Graduate

LIBS 697 MALS Capstone Experience 3 Credit Hours
This course is designed as a capstone experience for students in the MALS program who are interested in a non-thesis/non-project option. Its aim is to allow students to reflect and draw upon the knowledge they gained in MALS, and then apply this knowledge in class discussions, essays, and research projects on an interdisciplinary topic chosen from an agreed-upon list of topics that relate to the general MALS curriculum. In the first section of the course, students will reflect upon the interdisciplinary nature of their graduate training, drawing connections between diverse courses they have taken, pinpointing applications to the outside world, and examining the ways that interdisciplinary work has transformed their thinking. The remainder of the class will be organized around an interdisciplinary exploration of one of the following interrelated topics: "Memory", "Identity", "Place", "Community", or "Ways of Knowing". Students will examine how different disciplines and scholars approach the topic. They will also consider the relevance of this broad theme for contemporary issues and debates. Also, students should have completed at least 24 credits in the MALS program, if enrolled concurrently in a LIBS graduate course, or 27 credit otherwise, with a minimum GPA of 3.0.
Restriction(s):
Can enroll if Class is Graduate

LIBS 698 MALS Master's Project 3 or 6 Credit Hours
An alternative to the usual master's thesis for students who can present a feasible plan for a project using methods of intellectual exploration and analysis other than the document-based research typically used in preparing a thesis. Might include gathering data through the use of human subjects, as with interviews and survey instruments; creative representation, as in painting; creative writing, and other forms of artistic expression; or devising new modes of interdisciplinary analysis of human experience and thought. To be carried out under the general supervision of a member of the graduate faculty in CASL. Project plan must be approved by the MALS program director before student registers for this course. Report and oral presentation to a panel of faculty members required when the project is completed. (F,W,S).

LIBS 699 MALS Master's Thesis 3 or 6 Credit Hours
MALs students electing the Thesis option in the last stage of the program will work under the general supervision of a member of the graduate faculty in CASL, but will plan and carry out the work independently. A prospectus for the thesis must be approved by the MALS program director before the student registers for this course. The student will submit a report on the thesis and give an oral presentation to a panel of faculty members when the thesis is completed. (F,W,S).

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Library Science (LIBR)

LIBR 575 Issues Lit Child/Yng People 3 Credit Hours
This course is designed to heighten the awareness and sensitivity of teachers to the treatment of issues in modern and traditional literature for elementary and middle school children. Among these issues will be justice, ethics, abuse, conformity, aging, death, sibling problems, alienation, friendship, prejudice, gender, and other areas of concern. Techniques and activities for fostering discourse and open inquiry in the classroom, relative to the literature, will be explored and presented. (F, YR).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services
Other Content

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

* An asterisk denotes that a course may be taken concurrently.
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

**Linguistics (LING)**

LING 525  Language and Society  3 Credit Hours
An examination of the social functions of speech through readings and exercises, emphasizing schools and other applied settings. Topics include ethnic and social class dialects, codeswitching, and the organization of conversation. (OC).
**Prerequisite(s):** ANTH 101 or LING 280
**Restriction(s):**
Can enroll if Class is Graduate

LING 561  Modern English Grammar  3 Credit Hours
The morphological and syntactic analysis of the structure of present day English considered in the light of modern linguistic science. Students cannot receive credit for both LING 461 and LING 561.
**Prerequisite(s):** LING 280 or LING 480 or LING 580
**Restriction(s):**
Can enroll if Class is Graduate

LING 564  Contemporary Rhetorical Theory  3 Credit Hours
An examination of contemporary rhetorical theories through the study of representative practitioners in related developments in linguistics, philosophy, and psychology. (OC)
**Prerequisite(s):** COMM 201 or COMM 220 or COMM 290 or ENGL 230 or ENGL 200 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250
**Restriction(s):**
Can enroll if Class is Graduate

LING 565  Discourse Analysis  3 Credit Hours
An examination of the syntactic and semantic devices and structures underlying communication in written text and oral interaction. Material to be analyzed will vary from term to term (technical reports, scholarly articles, newspaper stories) but examples will be drawn primarily from the written language. (OC)
**Prerequisite(s):** (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 270) or COMP 280 and (ENGL 230 or ENGL 231 or ENGL 232 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 240 or ENGL 250)
**Restriction(s):**
Can enroll if Class is Graduate

LING 574  Second Lang Acquisition: Engl  3 Credit Hours
A survey of fundamental concepts and major concerns in the study of English as a Second Language (ESL). The course examines a variety of psycholinguistic and sociolinguistic issues related to second language acquisition (SLA), ranging from theoretical to pedagogical. A primary focus is on developmental patterns and cognitive processes of SLA and individual variation in ESL speakers in terms of their social motivations and learning strategies. Implications for practical concerns such as the ESL teaching profession, instructional materials and curriculum development will be addressed where relevant. Graduate students will be assigned additional readings from a graduate course text and be required to submit an extra data analysis assignment and write a longer research paper.
**Prerequisite(s):** LING 480 or LING 580
**Restriction(s):**
Can enroll if Class is Graduate

LING 575  Lang Diversity: Arab Amer Comm  3 Credit Hours
The study of the development, features, functions, and significance of varieties of English in southeastern Michigan, with a focus on the Arab American community. A range of sociolinguistic approaches are explored and applied to the subject matter. Topics to be addressed include code switching, language shift and maintenance, style shifting, and the role of language in identity formation. Students cannot receive credit for both LING 475 and LING 575.
**Prerequisite(s):** LING 480 or LING 580

LING 576  Sociolinguistics  3 Credit Hours
An examination of sociolinguistic approaches to the issue of variation in language. Areas to be considered include ways of defining and constructing language, different types of language varieties, how variation is structured in language, the role of sociolinguistic variation in linguistic change, and the significance of linguistic acts of identity. (YR)
**Prerequisite(s):** LING 480 or LING 580
**Restriction(s):**
Cannot enroll if Level is Undergraduate

LING 577  African American English  3 Credit Hours
An examination of the structure, history, and use of African-American English. Topics will include the pronunciation, grammar and vocabulary of African-American English, theories of origin, linguistic repertoire and code-switching in African-American communities, the Ebonics controversy, and the role of this variety in education and identity formation. Additional reading assignments or projects will distinguish this course from its undergraduate version LING 477. Student cannot receive credit for both LING 477 and LING 577.
**Prerequisite(s):** LING 280 or LING 281 or LING 480 or LING 580
**Restriction(s):**
Can enroll if Class is Graduate

LING 580  Concepts in Linguistics  3 Credit Hours
An examination of foundational concepts in linguistics and sociolinguistic theory, which explores the intellectual and philosophical problems raised by these concepts. Issues covered include the metalinguistic nature of language studies, the relation of language to the communication systems of other species, the physiological basis of language, language variation, language function and instrumentality, and innate versus learned behavior. (YR)
**Restriction(s):**
Can enroll if Class is Graduate

LING 582  History of the English Lang  3 Credit Hours
A thorough grounding in the history and structure of the English language. At issue are the linguistic and ideological origins of the concept of Standard English, and the strengths and limitations of different methods of analyzing the history of the language. The course will emphasize sound change, grammatical change, and their sociolinguistic context. (YR)
**Prerequisite(s):** LING 480 or LING 580
**Restriction(s):**
Can enroll if Class is Graduate

LING 584  World Englishes  3 Credit Hours
A study of the origin and significance of different forms of English throughout the world. Contact with other languages, pidginization, creolization, standardization, and the formation of the three circles of English are examined. (YR)
**Prerequisite(s):** LING 480 or LING 580
**Restriction(s):**
Cannot enroll if Level is Undergraduate
**Local Government Management (LGM)**

**LGM 507  Strategic Communication  1 Credit Hour**
This Internet course addresses three levels of administrative communications - individual, group and organization - and examines the concepts and skills needed to be an effective communicator. Students will develop written and oral applications emphasizing goal-oriented communications and making strategic choices in content, structure, style and delivery. An emphasis is given to applications in the Local Government context. The course also covers basic ethical and legal issues of workplace communications.

**Restriction(s):**
Can enroll if Level is Graduate or Professional Development

**LGM 509  Pub Relations and News Media  1 Credit Hour**
LGM 509 is presented in three modules that examine: (1) how the news media operates, (2) "Getting the news" and how to deal with these special constituencies in your community and (3) how to work with the news media as a primary channel of communication to reach residents with information or to influence public opinion. The course includes assignments designed to test your knowledge, improve your media relations skills and help you plan for both proactive and reactive situations involving the news media.

**Restriction(s):**
Can enroll if Level is Graduate or Professional Development

**LGM 511  Citizen Participation for LGM  1 Credit Hour**
Local Government Management 511 examines the concepts associated with public participation and develops skills needed by local government administrators in their interaction with the public. Course objectives include: 1) Improve the awareness and recognition of the public and some of the principles of citizen participation in local government. 2) Identify and explore different techniques for enhancing and increasing the public’s participation in local government. 3) Increase the understanding of, and compliance with, the legal obligations of local government regarding public hearings and discuss techniques for maximizing the benefit derived from such hearings.

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Graduate

**LGM 512  Professionalism/Ethics for LGM  1 Credit Hour**
Local Government Management 512 examines the concepts and develops skills needed by local government administrators in ethical decision making and professional behavior. This one hour course encourages local government officials to continually cultivate personal integrity and to respond ethically to challenging situations. Given the recent abundance of ethical failures in government and business (from Watergate to Enron and beyond); and the increasing pressures of complex social and scientific dilemmas, it is essential that leaders see ethics as the greater part of expertise. The course will cover many of the ethical issues local officials encounter, and will analyze means by which local officials can respond ethically and professionally to difficult situations. Finally, the course will explore strategies for influencing a culture of high ethical and professional standards within organizations.

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Graduate

**LGM 541  LGM Finance I  1 Credit Hour**
Local Government Management 541 examines the concepts and develops skills needed by local government administrators in performing the budgetary and financial requirements of their local community. It identifies the characteristics of an effective budget development process. It also examines and provides guidance on essential financial practices such as managing cash and investments and debt management in the local government context. Course objectives include: 1) Improve the budget development process in your local community. 2) Assess your community’s debt situation and develop strategies and policies addressing the local debt. 3) Know how to properly manage cash, revenue and cash disbursements including the management of investments.

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Graduate

**LGM 542  LGM Finance II  1 Credit Hour**
Local Government Management 542 examines the concepts and develops skills needed by local government administrators in performing financial requirements of their local community. It focuses on proper accounting and auditing practices and procedures and provides guidance on essential financial practices such as procurement policies and procedures, pension, and risk management in the local government context. Course objectives include: 1) Explain the purposes and requirements of accounting and auditing in local government. 2) Explain the purposes and requirements of local procurement procedures, pension plan(s) and risk management policies.

**Restriction(s):**
Can enroll if Class is Post-baccalaureate NCFD or Graduate

* An asterisk denotes that a course may be taken concurrently.

**Management Information Systems (MIS)**

* An asterisk denotes that a course may be taken concurrently.
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Marketing (MKT)

MKT 515 Marketing Management 3 Credit Hours
This course examines the concepts, problems and techniques associated with the activities of bringing both consumer and industrial products to the marketplace. Topics include: consumer and industrial buyer behavior, market segmentation, target marketing, as well as product, place, promotion and pricing strategies. Particular emphasis is placed on analysis of cases.
Restriction(s):
Can enroll if Class is Graduate

MKT 564 Graduate Market Research 3 Credit Hours
The goal of this course is to familiarize students with marketing research concepts and techniques. The collection, analysis and interpretation of data for better managerial decision making will be emphasized. Topics include: problem definition, research design, questionnaire construction, sampling, statistical analysis, presentation and evaluation of research findings. (F, S, W)
Prerequisite(s): (DS 520 or IMSE 514) and MKT 515
Restriction(s):
Can enroll if Level is Graduate or Rackham

MKT 565 Advanced Marketing Management 3 Credit Hours
This course examines the current challenges facing the marketers, ranging from industry deregulation, Internet revolution to globalizing. Looked at closely are the emerging issues impinging on marketing decision, particularly in regard to focused marketing, relationship marketing, competitive advantage, positioning, and the marketing mix strategies. Term project and case analyses are important components of the course.
Prerequisite(s): MKT 515

MKT 620 Understanding Customers 3 Credit Hours
This course introduces students to concepts and theories developed in the behavioral sciences (economics, marketing, psychology, sociology, and anthropology) in relation to their influence on consumer behavior. The course is designed to provide students with an in-depth understanding of consumer markets in order to develop effective marketing strategies.
Prerequisite(s): MKT 515

MKT 621 Advertising and Promotion 3 Credit Hours
This course approaches advertising and promotional strategies and tactics from an integrated marketing communications perspective. The course is designed to provide students with an understanding of the various marketing mix elements, including advertising, sales promotion, public relations, direct marketing, event sponsorship, and the Internet in order to develop effective marketing communication strategies.
Prerequisite(s): MKT 515

MKT 622 Global Marketing 3 Credit Hours
This course draws from key concepts in marketing, business economics, and operations management to provide a comprehensive account of global marketing issues and strategies. This course is designed to give students several opportunities to apply the theories and concepts they have learned in class, primarily through the use of Country Manager simulation and a series of case analyses.
Prerequisite(s): MKT 515 and BE 530 and (OM 521 or IMSE 580 or EMGT 520)

MKT 623 Business to Business Marketing 3 Credit Hours
This course examines the differentiating aspect of industrial (business to business) marketing and the operational and strategic issues associated with them. Covers target marketing, marketing mix and strategic decisions involved in business markets. Case studies are an important feature of the course.
Prerequisite(s): MKT 515

MKT 624 Service Marketing 3 Credit Hours
This course examines the development and management of services in a changing and growing global marketplace. Among the challenges addressed will be the development of global service marketing strategies, the process for the development of new services, the role of climate and culture within the organization, strategies for customer retention, quality management and measurement in a service organization, and insights into service demand and the structure of the service industry.
Prerequisite(s): MKT 515

MKT 625 Global Sourcing and Logistics 3 Credit Hours
This course examines concepts in international purchasing and logistics to provide an in-depth understanding of the international supply chain. The course will examine how sourcing and logistics activities change and become more complex in the global environment. These aspects will be discussed in terms of the opportunities, challenges, and changing customer requirements presented by trading blocs, emerging markets, and developing countries.
Prerequisite(s): MKT 515

MKT 626 E-Tailing and Retailing 3 Credit Hours
Increasingly immune to traditional media, shoppers make bulk of their brand decisions in-store. Retailers (brick-and-mortar and Internet) play a vital role in a brand’s success in the marketplace. This course provides a comprehensive understanding of the current retail landscape. It introduces students to significant issues and analysis frameworks of 21st century retailing strategy and management, including retailing over the Internet, or “E-tailing.” The Internet presents challenges and opportunities to all retailers. Shoppers shape retail success. Retailers, brick-and-mortar and Internet, are challenged to enhance customer experience, customer service and customer satisfaction. The students will learn the complexities and nuances of shopper behavior, shopper demographics, and how shopper decisions are influenced by store design, store environment, store atmosphere and merchandizing, in brick-and-mortar and Internet stores. The course will elevate and enhance students’ readiness and advancement in retail, brand management and marketing careers. Format: Lecture and discussion, industry reports, group presentations and guest speakers. Regular attendance, class discussions, assignments, written reports and exams.
Prerequisite(s): MKT 515
Restriction(s):
Can enroll if Class is Graduate
The objective of this course is to provide a systematic approach to harnessing data to drive more effective marketing decision making and implementation. This course assumes a basic understanding of statistics but does not emphasize the mathematics behind the concepts. Combines with conceptual knowledge about the markets of interest, data is used to build a more profitable marketing practice. Topics covered include segmentation and targeting, positioning, customer value assessment, and new product and service design. By completing this course, you will be well on your way to making the ROI case for expenditures that companies are increasingly asking of the executives.

**Prerequisite(s):** MKT 515

**Restriction(s):**
- Can enroll if Class is Graduate
- Can enroll if Level is Rackham or Graduate

**MKT 708A Seminar: Marketing** 3 Credit Hours

**TOPIC TITLE:** International Marketing. The course will consist of three (3) major learning components: (1) Cateora textbook, with its stress on analytical and integrative aspects of international marketing decisions; (2) Harvard cases, covering a range of international marketing issues; (3) Project reports focused on important current international marketing topics.

**Restriction(s):**
- Can enroll if Class is Graduate

**MKT 708B Seminar: Marketing** 3 Credit Hours

**TOPIC TITLE:** Introduction to Entrepreneurship. This course focuses on the process of new enterprise creation. It will examine how the interplay of personal (and group) creativity and market demands provides a basis for the conception, design and launch of new ventures. Although a variety of business options will be considered, emphasis will be placed on the creation of technology-driven growth enterprises. The course content will familiarize students with the tasks of capital formation, business planning, staffing systems, design and operations management in the entrepreneurial context. Students taking the course should have an interest in creating a new firm or initiating an intrapreneurial venture within a larger organization. All students will develop and present a business plan for their venture.

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering:
- (F) fall term;
- (W) winter term;
- (S) summer term;
- (F, W) fall and winter terms;
- (YR) once a year;
- (AY) alternating years;
- (OC) offered occasionally

**Mathematics (MATH)**

**MATH 504 Dynamical Systems** 3 Credit Hours

The aim of this course is to survey the standard types of differential equations. This includes systems of differential equations, and partial differential equations, including for each type, a discussion of the basic theory, examples of applications, and classical techniques of solution with remarks about their numerical aspects. Also included are autonomous and periodic solutions, phase space, stability, perturbation techniques and Method of Liapunov. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 404. Students cannot receive credit for both MATH 404 and MATH 504. (AY)

**Restriction(s):**
- Can enroll if Level is Graduate or Rackham

**MATH 5055 Integral Equations** 3 Credit Hours


**Prerequisite(s):** MATH 216 and (MATH 217 or MATH 227)

**Restriction(s):**
- Can enroll if Class is Graduate

**MATH 508 Topics for Elem and Mid Tchrs** 1 to 4 Credit Hours

Topics such as problem solving, calculators, microcomputers, applications, algebraic and geometric concepts, probability and statistics are to be considered. Emphasis is on developing skills in these topics and their uses in the curriculum.

**Prerequisite(s):** MATH 385

**MATH 508AF Topics in Math education** 2 Credit Hours

Topic: Graphing Calculators in Algebra and Data Analysis. This is one of the courses for special education teachers and their general education partners teaching algebra at the middle or high school level. The sequence emphasizes a deep understanding of the mathematics and of the pedagogical issues in student learning the mathematics with a particular emphasis on the use of the graphing calculator on students understanding and fluency in algebraic thinking and data analysis concepts. This course is for 2 credits.

**MATH 508AJ Topics in Mathematics Educ** 2 Credit Hours

Topic: Teaching Geometry with the Nspired Dynamic Geometry Software. This course is part of a sequence of courses for teachers of secondary school mathematics. This course focuses on the use of the dynamic geometry software Nspired to impact the teaching of geometry and student conceptual understanding of geometry. It will also discuss the pedagogical issues in the use the software. This is a two-credit course.
MATH 508N  Topics in Mathematics Educ  2 Credit Hours
Topic: Pedagogical Issues in Mathematics for Struggling Middle School Students. This course continues a sequence of courses for middle school teachers of mathematics offered by the Center of Mathematics Education in collaboration with Wayne RESA. Wayne RESA supports this sequence for districts and teachers who are not supported by either ITQ or MSP grants. It is a follow-up to the course Math 508L which focused on issues in student understanding of algebra. This course expands the focus to consider surrounding pre-algebra topics such as ratios and proportionality as well as geometry and measurement. The sequence emphasizes a deep understanding of the mathematics and the pedagogical issues in supporting struggling students attaining the expectations of Michigan’s Grade Level Content Expectations. The course will be for 2 credits.

MATH 508Q  Topics for Elem and Mid Tchrs  2 Credit Hours
Topic: Elementary School Mathematics: Data Analysis and Probability. This course focuses on topics in data analysis and probability for teachers of elementary school mathematics. The data analysis topics include the construction, reading and interpretation of tables and graphs, understanding and calculating measures of central tendency and issues such as scaling, and maximum and minimum and range. The probability topics include the concept of probability and expressing probabilities of simple events as fractions. Important aspects of the work are representation and problem solving. This course will be 2 credit hours.

MATH 508T  Topics for Elem and Mid Tchrs  2 Credit Hours
Topic: Explorations and Investigations in Mathematics in the Upper Elementary Grades. This course is part of a sequence of courses for upper elementary grades teachers of mathematics. The sequence emphasizes a deep understanding of the mathematics and of the pedagogical issues in students’ learning the mathematics embodied in the upper elementary grades standards-based curricula. This course will emphasize the content of topics in the Everyday Math series for the upper elementary grades. Its particular focus will be the explorations and investigations that engage students in learning the mathematics with particular attention paid to the use of calculators and games. This course is for 2 credit hours.

MATH 508X  Topics in Teacher Mathematics  3 Credit Hours
Topic: Focal Points in Algebra and Geometry: Middle School to High School. This course is part of a sequence of courses for teachers of middle school mathematics. This course focuses on the application of recently published Michigan middle school curriculum focal points to support student learning and deepen teacher knowledge of the mathematics underlying the focal points. Important to this study is teacher understanding of the essential understanding students need to be successful in high school algebra and geometry. This is a two-credit course.

MATH 512  First Course in Modern Algebra  3 Credit Hours
Introduction to groups, subgroups, group homomorphisms, factor groups, simple groups, cyclic groups. Sylow theorems, rings, ideals, integral domains, field, polynomial rings, Kronecker’s theorem, also properties of the integral, rational, real and complex numbers. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 412. Students cannot receive credit for both MATH 412 and MATH 512. (W)

Restriction(s):
Can enroll if Level is Rackham or Graduate

MATH 513  Linear Algebra  3 Credit Hours
Vector Spaces, linear transformations and matrices, determinants, inner product spaces, bilinear and quadratic forms. Hamilton-Cayley theorem, eigenvalues and eigenvectors spectral theorem. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 413. Students cannot receive credit for both MATH 413 and MATH 513. (Y)

Prerequisite(s): (MATH 200 and (MATH 217 or MATH 300) and MATH 216 or MATH 227)

MATH 514  Fin Diff Meth for Diff Equat  3 Credit Hours
This course studies the numerical solution of ordinary and partial differential equations using finite difference methods. Topics include convergence, stability, efficiency, numerical simulation and applications of these methods. (OC).

Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)

Restriction(s):
Can enroll if Class is Graduate

MATH 515  B-Splines & Their Applications  3 Credit Hours

Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)

Restriction(s):
Can enroll if Class is Graduate

MATH 516  Fin Elemnt Meth for Diff Equat  3 Credit Hours
This course studies the numerical solution of ordinary and partial differential equations using finite element methods. Topics include convergence, stability, efficiency, numerical simulation and applications of these methods. (OC).

Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)

Restriction(s):
Can enroll if Class is Graduate

MATH 520  Stochastic Processes  3 Credit Hours
Review of distribution theory. Introduction to stochastic processes, Markov chains and Markov processes, counting, Poisson and Gaussian processes. Applications to queuing theory. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 420. Students cannot receive credit for both MATH 420 and MATH 520. (AY)

Prerequisite(s): MATH 217 or MATH 227

Restriction(s):
Can enroll if Level is Graduate or Rackham

MATH 523  Linear Algebra w/Applications  3 Credit Hours
Vector spaces, linear transformations of vector spaces and their representations as matrices and canonical forms for similarity. Inner product spaces, diagonalization of the Hermitian forms by unitary transformations. Applications to linear programming and to the solution of systems of differential equations. (AY)

Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)

Restriction(s):
Can enroll if Level is Graduate or Rackham

MATH 525  Mathematical Statistics II  3 Credit Hours
Internal estimation and pivotal quantities; maximum likelihood estimation; hypothesis tests; linear models and analysis of variance; bivariate normal distribution, regression and correlation analysis; nonparametric methods. Additional reading assignments or projects will distinguish this course from its undergraduate version, MATH 425. Students cannot receive credit for both MATH 425 and MATH 525. (OC)

Prerequisite(s): MATH 325

Restriction(s):
Can enroll if Level is Graduate or Rackham
MATH 5385  Nmbr Sys & Oper Tchrs  2 or 3 Credit Hours
This course is designed to deepen grades 3-5 elementary teachers' understanding of the whole number and rational number systems. Major topics include interpretations of whole number operations, the extension of whole number operations to rational numbers, the representations of rational numbers and the conceptual underpinnings of non-standard and standard algorithms. Other topics include analyzing number theoretic concepts such as prime numbers and divisibility. Pedagogical and curriculum issues will be addressed as they relate to teaching for understanding and developing computational fluency. The topics of the 2-credit hour course will include whole numbers and operations. The 3-credit course will extend topics covered to rational numbers. Open only to certified teachers. (OC)
Restriction(s):
Can enroll if Class is Graduate

MATH 5386  Geom & Meas 1 Tchrs  2 or 3 Credit Hours
This course will provide participants an opportunity to develop a deeper understanding of the mathematics they teach through a thorough development of the geometric and measurement concepts associated with two-dimensional figures. Topics will include characteristics and properties of geometric shapes with an emphasis on developing mathematical arguments about geometric relationships, transformations and use of symmetry to analyze mathematical situations, measurable attributes of objects and processes of measurement, and appropriate techniques, tools, and formulas to determine measurements. Coursework will focus on developing mathematical thinking and will highlight interactive learning styles. A three-credit course extends measurement to the real numbers by introducing the Pythagorean Theorem. Open only to certified teachers. (OC)

MATH 5387  Geom & Meas 2 Tchrs  2 or 3 Credit Hours
This course will provide participants an opportunity to develop a deeper understanding of the mathematics they teach through a thorough development of the geometric and measurement concepts associated with three-dimensional figures. Topics will include characteristics and properties of geometric shapes with an emphasis on developing mathematical arguments about geometric relationships and use of symmetry to analyze mathematical situations, measurable attributes of objects and processes of measurement, and appropriate techniques, tools, and formulas to determine measurements. In addition, topics to be covered include the Pythagorean Theorem. Coursework will also focus on developing mathematical thinking and will highlight interactive learning styles. Open to only certified teachers. (OC)
Restriction(s):
Can enroll if Class is Graduate

MATH 543  Algebra for Teachers  3 Credit Hours
Algebraic structure is emphasized, especially as it relates to arithmetic. Emphasis is on the development of algebraic reasoning and generalizations with appropriate pedagogy. Curriculum issues relevant to teaching algebra for conceptual understanding are included. Major topics include algebraic representations of linear, exponential, power and quadratic patterns, systems of equations, and applications. An investigative approach involving problem solving, reasoning and proof, connections, and communication will be emphasized. Classroom resources and materials are considered as well as calculators and computer technology as problem solving tools to aid in algebraic thinking. Open only to certified teachers or elementary education students. (F, W, S).
Prerequisite(s): MATH 386

MATH 5440  Pedagogy Content Alg Tchrs I  2 or 3 Credit Hours
This is the first in a sequence of courses for secondary school teachers of mathematics. The sequence emphasizes a deep understanding of the mathematics and the pedagogical issues in students learning the mathematics embodied in the algebra components of secondary school mathematics as defined in the Michigan Merit Exam in mathematics for graduation from high school. The first two courses in this sequence emphasize the algebra and the algebraic reasoning basic to student success in Algebra 1, and the beginning of Algebra II. The three credit hour course furthers teachers' understanding of the use of mathematical models to represent quantitative relationships. Pedagogical and curriculum issues will be addressed as they relate to teaching for students? understanding of patterns and algebraic content.
Restriction(s):
Can enroll if Class is Graduate

MATH 5485  Geometry for Teachers  3 Credit Hours
Properties of two and three-dimensional figures are covered, including congruence, symmetry, transformation, and measurement. Trigonometry from a geometric perspective and the use of trigonometry in problem solving are included. Topics also include coordinate geometry and visualization as well as the nature of axiomatic reasoning and the role it has played in the development of mathematics. An investigative approach involving problem solving, reasoning and proof, connections, and communication will be emphasized. Calculator and computer technology will support the investigation of these topics. Classroom resources and materials are considered. Different levels of geometric thinking will be explored. Open only to certified teachers or elementary education students. (F, W, S).
Prerequisite(s): MATH 387
Restriction(s):
Can enroll if Class is Graduate
MATH 5441 Pedagogy Content Alg Tchrs II  2 or 3 Credit Hours
This is the second in a sequence of courses for secondary school teachers of mathematics. The sequence emphasizes a deep understanding of the mathematics and the pedagogical issues in students learning the mathematics embodied in the algebra components of secondary school mathematics as defined in the Michigan Merit Exam in mathematics for graduation from high school. The first two courses in this sequence emphasize the algebra and the algebraic reasoning basic to student success in Algebra I and the beginning of Algebra II. The three credit hour course further teachers' understanding of the use of mathematical models to represent quantitative relationships. Pedagogical and curriculum issues will be addressed as they relate to teaching for students' understanding of patterns and algebraic content.
Restriction(s):
Can enroll if Class is Graduate

MATH 5442 Geom & Meas 3 Tchrs  2 or 3 Credit Hours
This course will provide participants an opportunity to develop a deeper understanding of the mathematics they teach through a thorough development of the geometric and measurement concepts associated with two- and three-dimensional figures. Topics will include characteristics and properties of geometric shapes with an emphasis on developing mathematical arguments about geometric relationships, transformations and use of symmetry to analyze mathematical situations, measurable attributes of objects and processes of measurement, and appropriate techniques, tools, and formulas to determine measurements. In addition, topics to be covered include Pythagorean Theorem and right-angle trigonometric concepts. Coursework will also focus on developing mathematical thinking and will highlight interactive learning styles. Open only to certified teachers. (OC)
Restriction(s):
Can enroll if Class is Graduate

MATH 5443 Patterns Algebra 2 Tchrs  2 or 3 Credit Hours
This course is designed to deepen in-service teachers' understanding of patterns and algebraic concepts. Major topics include the representation, analysis, and generalization of a variety of linear and non-linear patterns (including exponential and quadratic) with tables, graphs, words, and symbolic rules; the comparing and contrasting of linear and non-linear patterns; the representation and analysis of mathematical situations and structures using algebraic symbols; the use of mathematical models to represent and understand quantitative relationships; and the analysis of change in various contexts. Pedagogical and curriculum issues will be addressed as they relate to teaching for students' understanding of patterns and algebraic concepts. Open only to certified teachers. (OC)
Restriction(s):
Can enroll if Class is Graduate

MATH 5445 Nmbr Sys Oper&Prop Reas Tch  2 or 3 Credit Hours
This course is designed to deepen middle school mathematics teachers' understanding of the whole number system and its operations and its extensions to the rational number system and their operations. The primary focus is on proportional reasoning as a major ingredient for success in mathematics. Pedagogical and curriculum issues will be addressed as they relate to teaching for understanding. Materials include exemplary curriculum materials and records of student thinking. Only open to certified teachers. (OC)
Restriction(s):
Can enroll if Class is Graduate

MATH 5446 Discrete Math/Modeling for Tch  3 Credit Hours
This course interweaves the ideas of discrete mathematics with the approaches and strategies of mathematical modeling. It gives pre- and in-service teachers opportunities to deepen their understanding and use of mathematical models based on the concepts of discrete mathematics. Topics include recurrence, induction, permutations, combinations, binomial distributions, circuits, critical paths, minimal spanning trees, adjacency matrices, algorithm design and optimization. Systems thinking and multiple representations are emphasized. Open only to certified teachers or elementary education students. (YR)
Restriction(s):
(MATH 442 or MATH 542) and (MATH 443 or MATH 543)

MATH 545 Number & Prop'l Rsnng for Tchrs  3 Credit Hours
This course deepens previous work on rational number ideas and applications and explores the concepts of ratio and proportion. Content includes a variety of situations involving proportions, for example, real-world problems involving ratios, rates, and percents; geometry involving similarity; algebra involving linearity; probability involving assigning a probability to an event; and trigonometry involving slope. Distinguishing proportional situations from those that are not and reasoning proportionally in appropriate situations are emphasized. The course includes problem solving, reasoning and proof, connections, communication, and multiple representations. Open only to certified teachers or elementary education students. (YR).
Restriction(s):
(MATH 442 or MATH 542) and (MATH 443 or MATH 543)

MATH 546 Microcomp in Math for Teach  2 Credit Hours
Use of the microcomputer in the mathematics classroom with an emphasis on the LOGO programming language. Problem solving, hands-on activities, and a cooperative learning environment are emphasized. Open only to certified teachers or elementary education students. (S)
Restriction(s):
MATH 386

MATH 547 Problem Solving for Teachers  2 Credit Hours
Problem-solving skills important to the mathematics classroom are introduced. Both the development of these skills for those in the course and the implementation of them in the classroom are pursued. Resource materials for the classroom are considered. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Additional reading assignments or projects will distinguish this course from its undergraduate version, MATH 448. Students cannot receive credit for both MATH 448 and MATH 548. (F).
Restriction(s):
MATH 386

MATH 548 Number & Prop'l Rsnng for Tchrs  3 Credit Hours
This course deepens previous work on rational number ideas and applications and explores the concepts of ratio and proportion. Content includes a variety of situations involving proportions, for example, real-world problems involving ratios, rates, and percents; geometry involving similarity; algebra involving linearity; probability involving assigning a probability to an event; and trigonometry involving slope. Distinguishing proportional situations from those that are not and reasoning proportionally in appropriate situations are emphasized. The course includes problem solving, reasoning and proof, connections, communication, and multiple representations. Open only to certified teachers or elementary education students. (YR).
Restriction(s):
(MATH 442 or MATH 542) and (MATH 443 or MATH 543)

MATH 549 Problem Solving for Teachers  2 Credit Hours
Problem-solving skills important to the mathematics classroom are introduced. Both the development of these skills for those in the course and the implementation of them in the classroom are pursued. Resource materials for the classroom are considered. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Additional reading assignments or projects will distinguish this course from its undergraduate version, MATH 448. Students cannot receive credit for both MATH 448 and MATH 548. (F).
Restriction(s):
MATH 386

MATH 550 Problem Solving for Teachers  2 Credit Hours
Problem-solving skills important to the mathematics classroom are introduced. Both the development of these skills for those in the course and the implementation of them in the classroom are pursued. Resource materials for the classroom are considered. No credit for CASL concentration, minor, or area of focus. Open only to certified teachers or elementary education students. Additional reading assignments or projects will distinguish this course from its undergraduate version, MATH 448. Students cannot receive credit for both MATH 448 and MATH 548. (F).
Restriction(s):
MATH 386
MATH 549  Concepts of Calc for Teachers  3 Credit Hours
Concepts of Calculus for Teachers focuses on calculus concepts appropriate for middle school mathematics teachers and teacher-candidates. The course provides a deep understanding of the major concepts of calculus: rates of change, accumulation (net change), area, and limits. Students will experience concrete approaches to the various topics using problem solving, manipulatives and technology as appropriate, with the intent being to help the learners discover how the ideas of calculus are useful in a variety of settings. Visual, numeric, and commonsense approaches will be used. Open only to certified teachers or elementary education students. (YR).
Prerequisite(s): (MATH 442 or MATH 542) and (MATH 443 or MATH 543)
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

MATH 551  Advanced Calculus I  3 Credit Hours
Properties of the real number system; point set theory for the real line including the Bolzano-Weierstrass theorem; sequences, functions of one variable; limits and continuity, differentiability, Riemann integrability. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 451. Students cannot receive credit for both MATH 451 and MATH 551. (YR).
Restriction(s):
Can enroll if Class is Graduate

MATH 552  Advanced Calculus II  3 Credit Hours
Includes the rigorous study of two and more variables, partial differentiation and multiple iteration. Special topics include: Taylor Series, Implicit Function Theorem, Weierstrass Approximation Theorem, Arzela-Ascoli Theorem. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 452. Students cannot receive credit for both MATH 452 and MATH 552. (AY)
Prerequisite(s): MATH 451 or MATH 551
Restriction(s):
Can enroll if Class is Graduate

MATH 554  Fourier and Boundary  3 Credit Hours
Fourier series and integrals. Their use in solving boundary value problems of mathematical physics by the method of separation of variables. Sturm-Liouville theory and generalized Fourier series, including those involving Bessel functions and Legendre polynomials, with applications. Students cannot receive credit for both MATH 454 and MATH 554. (YR).
Restriction(s):
Can enroll if Class is Graduate

MATH 555  Func of a Complex Var with App  3 Credit Hours
Complex number system. Functions of a complex variable, their derivatives and integrals. Taylor and Laurent series expansions. Residue theory and applications, elementary functions, conformal mapping, and applications to physical problems. Students cannot receive credit for both MATH 455 and MATH 555. (F,S).

MATH 558  Introduction to Wavelets  3 Credit Hours
This course will introduce the students to theory and application of wavelets using linear algebra. Topics will include the discrete Fourier transform, the fast Fourier transform, linear transformations, orthogonal decomposition, discrete wavelet analysis, the filter bank, Haar Wavelet family, and applications. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 458. Students cannot receive credit for both MATH 458 and MATH 558. (OC)
Restriction(s):
Can enroll if Class is Graduate

MATH 562  Mathematical Modeling  3 Credit Hours
The processes of constructing, implementing, and evaluating mathematical models of "real world" phenomena are investigated. Models involving continuous and discrete mathematical constructs are considered. Deterministic and stochastic models are compared. Examples are taken from genetics, epidemiology, queuing theory, and other fields. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 462. Students cannot receive credit for both MATH 462 and MATH 562. (AY)
Restriction(s):
Can enroll if Level is Graduate or Rackham

MATH 572  Intro to Numerical Analysis  3 Credit Hours
Solution of linear systems by Gaussian elimination, solution of non-linear equations by iterative methods, numerical solution of ordinary differential equations, data fitting with spline functions, numerical integration, optimization. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 472. Students cannot receive credit for both MATH 472 and MATH 572. (F)
Prerequisite(s): MATH 217 or MATH 227
Restriction(s):
Can enroll if Level is Rackham or Graduate

MATH 573  Matrix Computation  3 Credit Hours
A study of the most effective methods for finding the numerical solution of problems which can be expressed in terms of matrices, including simultaneous linear equations, orthogonal projections and least squares, eigenvalues and eigenvectors, positive definite matrices, and difference and differential equations. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 473. Students cannot receive credit for both MATH 473 and MATH 573. (AY).
Prerequisite(s): MATH 217 or MATH 227
Restriction(s):
Can enroll if Level is Rackham or Graduate

MATH 580  History of Mathematics  3 Credit Hours
A unified view of the rise of mathematics from ancient times to the present, as seen in its conceptual developments and developers, its major themes and its applications (including computers). Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 480. Students cannot receive credit for both MATH 480 and MATH 580. (OC).
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Level is Graduate or Rackham

MATH 582  Computer Algebra Systems  3 Credit Hours
The use of computer algebra in various areas of mathematics including the solution of algebraic and differential equations, matrix computations, approximation techniques, probability, and discrete mathematics. Programming within the system is also included. Students will be expected to design, implement, and present a project using a computer algebra system. (OC).
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate
MATH 583  Discrete Optimization  3 Credit Hours
This is an introductory course in discrete optimization at the graduate level for mathematics, science, engineering, and management majors. The goal of this course is to provide an overview of the problem settings in discrete optimization. In particular, the students will learn some of the fundamental combinatorial and heuristic optimization methods used in practice. The main emphasis of the course will be on modeling optimization problems mathematically and solving them using standard optimization techniques. The course will also address the limitations and complexity of the solutions that are found. The important theoretical and practical aspects of discrete optimization will be introduced using standard software packages such as Lingo and Lindo.
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate

MATH 584  Applied Algorithmic Graph Thy  3 Credit Hours
Selected graph theory concepts and their application to a variety of real-world problems. A study of associated algorithms. Solution of problems using existing software packages. (OC)
Prerequisite(s): MATH 217 or MATH 227
Restriction(s):
Can enroll if Class is Graduate

MATH 586  Sec School Math for Teachers  3 Credit Hours
Basic concepts, relationships, generalizations, and applications from the secondary school mathematics curriculum are discussed both from an advanced viewpoint and from the standpoint of the learner. Included are the roles of technology, problem solving, and current thinking on the teaching of secondary mathematics topics. Open only to certified teachers or secondary education students. (OC).
Prerequisite(s): MATH 217 or MATH 227
Restriction(s):
Can enroll if Level is Graduate or Rackham

MATH 590  Topics in Math & Stat  3 Credit Hours
A course designed to offer selected topics in different areas of mathematics. The specific topic or topics will be announced together with the prerequisites when offered. Course may be repeated for credit when specific topic differs. (OC)
Prerequisite(s): MATH 216 and (MATH 217 or MATH 227)
Restriction(s):
Can enroll if Class is Graduate

MATH 590A  Topics in Mathematics and Stat  3 Credit Hours
Topic: Introduction to Wavelets. This course will introduce students to the theory and applications of wavelets. Topics will include discrete Fourier analysis, the Fast Fourier Transform, linear transformations, orthogonal decomposition, discrete wavelets analysis, the filter bank, HAAR Wavelet family, and applications.

MATH 591  Topics in Math for Teachers  1 to 3 Credit Hours
A course designed to offer selected topics in different areas of mathematics for teachers of mathematics. The specific topic or topics will be announced together with the prerequisites when offered. Course may be repeated for credit when specific topics differ. (OC).

MATH 591A  Topics in Math and Statistics  1 Credit Hour
TOPIC TITLE: Algebraic Reasoning for Teachers This course will engage participants in activities that foster algebraic reasoning. Work will focus on observing patterns of change in real-life and mathematical situations, on describing and recording patterns of change, and on generalizing patterns. Ways of representing patterns of change, such as, verbal descriptions, tables and graphs as well as symbolic rules will be discussed. Advantages and disadvantages of the various representation for promoting understanding of relationships and patterns. Understanding the relationship between two variables is fundamental to the understanding of functions. Initial consideration will be given to linear relationships; that is, a relationship in which, as one variable changes, the other changes a constant amount. To extend and broaden understanding of functions, patterns will be explored in which the rate of change is predictable, but not constant. Using an investigative, team-based approach, teachers will participate in learning activities that model MCF Learning and Teaching Standards. Discussions will revolve around how exploring patterns and making generalizations will develop a deeper and broader understanding of fundamental algebraic concepts. Participants will experience rich mathematical content and constructivist instructional approaches.

MATH 591B  Topics in Math and Statistics  1 Credit Hour
TOPIC TITLE: Number Systems: The How and the Why This course will examine number systems and their properties from an advanced standpoint. It will consider the development of the real number system beginning with the whole numbers and continuing through the integers, rational numbers and irrational numbers. The topical threads include historic motivation, number sense and estimation, models for the operations, development of algorithms, field properties, representations, and fundamental relationships. The Michigan Curriculum Framework and the NCTM Standards 2000 will inform the content. Class time will be spent in cooperative learning groups, guided discovery lessons, and whole class discussions.

MATH 591C  Topics in Math and Statistics  1 Credit Hour
TOPIC TITLE: Transformational Geometry and the Geometer's Sketchpad This course is based on the Institute for Advanced Study's Summer Geometry Institutes for high school teachers. The goal is to enable teachers of secondary school mathematics to deepen and broaden their understanding of topics relevant to grades 7-12 and to experience the use of dynamic geometry software which engages students in inquiry-based lessons. The theme for this course will be transformational geometry with extensive use of the Geometer's Sketchpad. No experience with the software is expected. Using an investigative, team-based approach, teachers will participate in learning activities that model Michigan Curriculum Framework Learning and Teaching Standards.
MATH 591D **Topics in Math and Statistics** 1 Credit Hour

**TOPIC TITLE**: Principles and Concepts of Data Analysis and Statistics for Teachers
This course will help high school teachers gain a deeper understanding of topics of descriptive statistics and data analysis. The Michigan Curriculum Framework (MCF) and the College Board's Advanced Placement Statistics curriculum guide the content. Topics include interpreting visual displays of data; interpreting measures of central tendency and dispersion; interpreting and calculating solving problems related to correlation, distributions, percentile and standard scores; recognizing the effects of transformations applied to data; effective use of sampling techniques and methods for reporting data; making appropriate inferences, interpolations and extrapolations using best-fit techniques. Calculator and computer technology will support the investigation of these topics. Using an investigative, team-based approach, teachers will participate in learning activities that model MCF Learning and Teaching Standards. Emphasis will be placed on ways in which statistical analysis can be used as a tool for improving student understanding in topics in secondary school mathematics.

MATH 591E **Topics in Math and Statistics** 1 Credit Hour

**TOPIC TITLE**: Geometric Reading for Teachers
This course is intended for teachers of grades 5-9. It will explore the recurring themes of geometry and their internal elegance. The van Hiele levels and their instructional implications for understanding student's construction of geometric knowledge will be used. The Michigan Curriculum Framework and the NCTM Standards 2000 guide the content. Participants will work with geometry software such as Sketchpad and online resources. Using an investigative, team-based approach, teachers will participate in learning activities that model MCF Learning and Teaching Standards. Emphasis will be placed on deep understanding of topic. The goal will be for participants to teach geometry concepts with new consistency and new enthusiasm and to push their students to operate at higher intellectual levels, with the expectation that the student academic achievement will increase.

MATH 591J **Topics in Math and Statistics** 1 Credit Hour

**TOPIC TITLE**: Summer Geometry Workshop for Teachers: Part 1
This course will help high school teachers gain a deeper understanding of topics in secondary school mathematics. Teacher participants will deepen and broaden their understanding of geometric topics important to secondary school mathematics. Teacher participants will enhance their skills using paper folding and construction tools in investigative activities and in designing classroom lessons that use these tools. Teacher participants will enhance their understanding of Geometer's Sketchpad and how this dynamic software tool can be used effectively in enhancing the understanding of geometry through investigations that encourage discovery and use an inductive process. Teacher participants will learn what research says about the brain and teaching and learning; and apply this understanding to enhance their teaching and their student learning of mathematics. Teacher participants will experience the deep learning that takes place through substantive discourse with colleagues.

MATH 592 **Introduction to Topology** 3 Credit Hours

Metric spaces, topological spaces, continuous maps, connectedness, compactness, separation axioms. Additional reading assignments or projects will distinguish this course from its undergraduate version MATH 492. Students cannot receive credit for both MATH 492 and MATH 592. (OC).

**Prerequisite(s)**: MATH 451 or MATH 551

**Restriction(s)**: Can enroll if Level is Rackham or Graduate

MATH 595 **Master's Project Seminar** 3 Credit Hours

Students will do a project involving a problem which may be from either an industrial or academic source. It may involve searching for appropriate techniques developed by others or the development of one's own methods. Part of the project will be both written report and an oral presentation to the seminar. In the case that the problem arises from an industrial source there should also be a written and/or oral report to the sponsoring group. (OC).

**Restriction(s)**: Can enroll if Class is Graduate

MATH 597 **Indep Studies in Mathematics** 1 to 3 Credit Hours

Independent study in mathematics for topics at the graduate level. Topics and objectives chosen by agreement between students and instructor.

MATH 598 **Indep Study in Math Education** 1 to 6 Credit Hours

Independent study project in Mathematics Education under the supervision of a faculty member.

**Restriction(s)**: Can enroll if Class is Post-baccalaureate NCDF or Post-baccalaureate Cert only or Graduate

MATH 599 **Independent Research Project** 1 to 3 Credit Hours

Students will do a project involving a problem which may be from either an industrial or academic source. It may involve searching for appropriate techniques developed by others or the development of one's own methods. Part of the project will be both written report and an oral presentation to the seminar. In the case that the problem arises from an industrial source there should also be a written and/or oral report to the sponsoring group. (OC).

**An asterisk denotes that a course may be taken concurrently.**

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

---

**Mechanical Engineering (ME)**

ME 510 **Finite Element Methods** 3 Credit Hours

Overview and applications of FE theory in linear static and dynamic systems. Review of matrices, strain and stress tensors. Variational and energy principles in FEA. Applications in linear stress analysis; 1D, 2D and 3D. Transient solutions; modal analysis. Modeling concepts. Use of general purpose codes like ANSYS, NISA, ARIES. Project work. Graduate standing or special permission. (YR).

**Restriction(s)**: Can enroll if Class is Graduate

ME 512 **Structural Analysis** 3 Credit Hours

Advanced treatment of dynamic structural theories. Topics covered include: Rayleigh and Timoshenko beams and plates; free and forced vibration response of structural components; static and dynamic stability; and impact.

**Restriction(s)**: Can enroll if Level is Doctorate or Rackham or Graduate
ME 514  Advanced Stress Analysis  3 Credit Hours
Stresses and deformations in mechanical and structural elements and systems; theory, analysis and applications. Topics selected from among the following in applied elasticity and advanced mechanics of materials: stress and strain transformation; plane theory of elasticity and stress functions; energy methods; thick-walled cylinders and spinning disks; torsion of non-circular and hollow sections; unsymmetric bending and shear center; curved beams; beams on elastic foundations; plates and shells; elastic stability. Graduate standing or permission of instructor. (YR).
Restriction(s):
Can enroll if Level is Rackham or Graduate

ME 515  Advanced Mechanics of Solids  3 Credit Hours
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 516  Special Topics in Mech Eng  1 to 3 Credit Hours
Selected topics pertinent to mechanical engineering. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

ME 518  Advanced Engineering Analysis  3 Credit Hours
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

ME 519  Basic Comp Methods in Eng  3 Credit Hours
An introduction to basic numerical methods in engineering. Topics covered include solutions of linear and nonlinear algebraic equations, solution of initial and boundary value problems in engineering by shooting, finite-difference and transformation techniques, computer-aided perturbation, numerical inversion of Laplace transformation. Finite-element methods. Solutions of partial differential equations. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

ME 521  Dyn and Therm of Comp Flow  3 Credit Hours
Review of basic equations of fluid mechanics and thermodynamics in control volume form. One-dimensional, compressible flow involving area change, normal shocks, friction, heat transfer, and combined effects. Two-dimensional supersonic flow including linearization, method of characteristics, and oblique shocks. One-dimensional, constant area, unsteady flow. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 522  Advanced Fluid Mechanics  3 Credit Hours
Graduate level course of fluid mechanics. Review of fluid flow phenomena based on common principles of transfer of mass, momentum, and energy. Introduction of the fundamental concepts and methods of analysis of fluid flows in industrial and environmental settings. Navier Stokes equations; viscous and inviscid flows; laminar and turbulent flows; boundary layers; drag; thermal convection. Prerequisite: Full course of undergraduate thermodynamics, fluid dynamics, and heat transfer. Course is the equivalent of ME 520. Students who have already taken ME 520 with a grade of B or better will not receive additional credit for ME 522. (W,YR)
Prerequisite(s): ME 230 and ME 430
Restriction(s):
Can enroll if Class is Graduate or Doctorate
Can enroll if Major is Mechanical Engineering-NCFD, Mechanical Engineering

ME 528  Fund of Boiling and Condensatn  3 Credit Hours
An introduction to the basic elements of condensation and vaporization processes. Topics cover fundamentals such as gas-liquid interfacial phenomena; phase stability and nucleation; two phase flow regimes, and critical heat flux. The course also includes special topics and applications such as convective vaporization and condensation in heat transfer equipment. Three Lecture hours per week.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

ME 531  Statistical Thermodynamics  3 Credit Hours
Introduction to statistical methods of evaluating thermodynamic and transport properties. Elements of quantum mechanics, statistical mechanics, and kinetic theory, as applied to engineering thermodynamics. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham
ME 532  Combustion Processes  3 Credit Hours
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 535  Advanced Thermodynamics  3 Credit Hours
Advanced treatment of engineering thermodynamics as applied to producing mechanical power and refrigeration. Involves rigorous application of the first and second laws. Topics to be discussed are energy/entropy generation, thermodynamics relations, nonreacting mixtures, and reacting mixtures. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 537  Automotive Air Conditioning  3 Credit Hours
Applications of HVAC fundamentals to analysis and design of automotive air conditioning systems. Topics include psychrometrics, thermal comfort, refrigeration cycles and system design, heating system design, air flow circuits, air space diffusion, compact heat exchanger design, and instrumentation/controls.
Prerequisite(s): AENG 534
Restriction(s):
Can enroll if Level is Rackham or Graduate

ME 538  Vehicle Thermal Management  3 Credit Hours
This course covers fundamental thermo-fluid principles and advanced topics in thermal management of conventional and electric drive vehicles (EDVs). The topics include: principles of energy conservation, heat transfer, and fluid mechanics; vehicle thermal management system and components; electrification of vehicle thermal management system; EDV thermal management; battery thermal management in EDVs; and waste energy recovery.
Restriction(s):
Can enroll if Class is Graduate or Doctorate

ME 540  Mechanical Vibrations  3 Credit Hours
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 542  Advanced Dynamics  3 Credit Hours
An advanced treatment of analytical mechanics for particles, systems of particles and rigid body motions with special emphasis on three-dimensional motion. Lagrange's equation of motion will be introduced and utilized in the analysis of multiple-mass systems. Computer methods will be covered. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 543  Vehicle Dynamics  3 Credit Hours
A treatment of the response, ride, and maneuvering of motor vehicles. Road loads, suspension systems, mechanics of pneumatic tires.
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

ME 545  Acoustics and Noise Control  3 Credit Hours
Fundamentals of acoustical waves, sound propagation and intensity, instruments for vibration and noise, HVAC system noise, automobile and aircraft noise, noise control techniques. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 547  Powertrains I  3 Credit Hours
Topics in vehicle powertrain kinematics and dynamics, engine output characteristics, vehicle road load analysis, engine-transmission matching, design and analysis of gears and gear systems, planetary gear trains, design of powertrain components, clutch design and analysis, transmission design and analysis, torque and ratio analysis of automatic transmissions. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 552  Sustainable Energy Systems  3 Credit Hours
The course provides an overview of energy technology from a broad perspective that encompasses technical and environmental aspects. It covers a wide range of traditional and alternative energy sources and presents assessments of their availability, sustainability, and environmental impacts as well as evaluation of their potential role in solving the global energy problem. Course work includes project.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

ME 554  Theory of Gearing and Application  3 Credit Hours
The course emphasizes the theory and methodology for the design, manufacturing and analysis of gears and other engineering surfaces. Topics include differential geometry, kinematics of conjugate motions, surface enveloping, curvatures, cutter design, machine tool settings, simulation of machining process, tooth contact analysis, geometry modeling and design of power transmissions. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham
ME 556  Stress and Strength Cons in Design   3 Credit Hours
Treatment of stress and strength aspects of machine design. Analytic and experimental determination of stresses in machine members. Evaluation of strength under steady and fatigue loadings. Post-yield behavior, residual stress, temperature and corrosion effects. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 558  Fracture and Fatigue Cons in Des   3 Credit Hours
A comprehensive review of fracture and fatigue processes in engineering material with emphasis on mechanics instead of mechanisms of failure. Design methodology based on fracture toughness and fatigue crack propagation is presented. Laboratory test methods and data interpretations are also presented. Graduate standing or permission of instructor. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 560  Experimental Methods in Design   3 Credit Hours
Planned experiments and their statistical analysis. Emphasis on application in life and strength testing. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 563  Advanced Instrum and Control   3 Credit Hours
Analysis of design techniques in modern control theory are presented. State space concepts, digital control, and adaptive control methods are covered, along with information on practical implementation problems experienced with these control techniques. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Rackham or Graduate

ME 565  Mechatronics   3 Credit Hours
Mechatronics, as an engineering discipline, is the synergistic combination of mechanical engineering, electrical engineering, control engineering, and computer science, all integrated through the design process. The course is to establish a working familiarity with the key engineering elements in the design and control of electro-mechanical systems in general and automotive systems in particular. The key engineering elements include microprocessor technology, electronics, sensors and actuators, data communication and interface, control algorithms, and mechanisms of machine elements. The course is to introduce a design methodology in an integrated system environment through case studies and design projects. (AY).
Restriction(s):
Can enroll if Class is Graduate

ME 567  Reliability Consid in Design   3 Credit Hours
Theory and application of common statistical distributions to the analysis of both life and strength data for components. Introduction to system reliability. Emphasis on use of digital computer in reliability simulation and analysis. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 570  Powertrain NVH of Elect Veh   3 Credit Hours
This course focuses on the Noise, Vibration and Harshness (NVH) characteristics of Electric Vehicles (EV), Hybrid Electrical Vehicles (HEV), and Plug-In Electric Vehicles (PHEV). Topics include principles of mechanical vibration and acoustics, driveline induced noise/vibration from both conventional internal combustion engine and electrical motor/generator, cooling fan noise, regenerative braking system and electrical accessory noise. The potential countermeasures for typical noise/vibration sources will be presented. The course consists of classroom lectures and experimental laboratory sessions. The laboratory sessions will provide the student with hands-on experience on noise/vibration measurements and analyses. The student will be required to carry out a course project on NVH related subject of electrified vehicles.
Restriction(s):
Can enroll if Class is Graduate

ME 571  Conduction Heat Transfer   3 Credit Hours
Conduction heat transfer in steady and transient state, including heat sources. Analytical, numerical, graphical, and analog methods of solution for steady and fluctuating boundary conditions. Thermal stresses. Dynamics of thermal instrumentation and heat exchangers. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 572  Convection Heat Transfer   3 Credit Hours
The course is primarily concerned with the determination of the rate of heat transfer due to the transport of energy to or from surfaces by both molecular conduction processes and gross fluid movement inside channels and over external surfaces. Emphasis will be placed on basic understanding of the convection heat transfer phenomena and the necessary mathematical techniques for the solution of such problems along with engineering applications. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Rackham or Doctorate or Graduate

ME 573  Radiative Transport of Heat   3 Credit Hours
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 575  Energy: Sources,Conversion,Util   3 Credit Hours
This course is intended to give the overall knowledge of energy sources, their conversion and utilization in the most efficient way. The course will stress both the theoretical and practical applications of efficient conversion mechanisms of conventional and alternate energy systems.
Restriction(s):
Can enroll if Class is Graduate
ME 577  Energy Conversion  3 Credit Hours
This course covers fundamental engineering principles for converting available energy sources, renewable and nonrenewable, into other energy forms of direct utility. It may include such topics as steam and gas based power plants as well as devices for solar, wind, and hydraulic energy conversion.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate
Can enroll if College is Engineering and Computer Science

ME 580  Advanced Engineering Materials  3 Credit Hours
A second course in materials which expands the philosophy that all materials possess common traits which allow: (1) interchange of classes of materials to perform the same function, e.g., metals, polymers, ceramics, composites, etc.; and (2) understanding of the mechanisms of property controls in new materials. There is an attempt to provide equal representation of the science and the phenomena of engineering materials. Greater emphasis is placed on thermodynamics, stress-strain relations, multicomponent phase equilibria, and such other areas as received minimal exposure in the first course in materials. As a result of present technology trends, more time is spent on composites and achievement of design specifications through synthesis. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Rackham or Graduate

ME 581  Materials for Manufacturing  3 Credit Hours
Prerequisite(s): ME 381
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if Major is Manufacturing System Engin

ME 582  Injection Molding  3 Credit Hours
This is an in-depth course on injection molding processes, which include the conventional injection molding process, low pressure injection molding, structural sandwich molding, gas assisted injection molding etc. Material, process and tool design parameters are emphasized. The roles of rheology and flow modeling are discussed. Design issues for injection molded products are also discussed. Injection molding applied to other materials, such as ceramics, is also described. (YR).

ME 583  Mechanical Behav of Materials  3 Credit Hours
Mechanical behavior of materials are covered in relation to their structures, deformation characteristics and failure mechanisms. Means of improving strength, fracture toughness and other mechanical properties are discussed. Environmental effects on mechanical behavior are also included. The emphasis is on metals, however, polymers and ceramics are also covered. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 584  Mechanical Behavior of Polymer  3 Credit Hours
Mechanical behavior of polymers and ceramics are considered in relation to their structures, processing and applications. Emphasis is given on their deformation, fatigue and fracture characteristics. Strengthening mechanisms for both materials are discussed. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 585  Cast Metals in Eng Design  3 Credit Hours
An understanding of the properties of the most important cast metals is obtained by melting, casting, and testing. In addition to measurement of mechanical properties, resistance to heat, wear, and corrosion is discussed. The application of these properties in the design of critical parts in the aircraft, automotive, chemical, mining, and railroad industries is presented by case histories and examination of castings. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 586  Materials Consid in Manufactur  3 Credit Hours
Manufacturability of materials and influence of processing variables on the properties of manufactured products are important considerations in materials selection and product design. These issues are addressed on the basis of mechanical deformation and thermal characteristics of materials during processing. Test methods to measure formability, castability, machinability, etc., are critically discussed. Defects in manufactured products including their origin and detection are also discussed. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Doctorate or Rackham

ME 587  Automotive Composites  3 Credit Hours
The emphasis in this course is on automotive composites, such as SMC, SRIM and RTM. In addition to properties and applications of these materials, this course covers manufacturing processes, design considerations, test methods and quality control techniques used for automotive composites. The use of continuous fiber composites in automotive applications, such as leaf springs, drive shafts and energy absorbing structures, are also discussed. (YR).

ME 588  Production of Mech Products  3 Credit Hours
Selecting and performing unit operations; processing metals and composites; adjusting composition and microstructure; assembling and joining; finishing and packaging. Material handling. Flexible systems. Machine and system capability studies. Maintaining plant and equipment. Safe operations. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Level is Graduate or Rackham

ME 589  Composite Materials  3 Credit Hours
This course will consider four different aspects of composite materials; namely, materials, mechanics, manufacturing and design. Recent developments on fiber reinforced plastics and metals will be covered. Fundamental analytical concepts on micro and macro mechanics will be emphasized to create a better understanding of the design principles of composite materials. Graduate standing or special permission. (YR).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate
ME 591 Degradation of Materials  3 Credit Hours
The course will introduce students to the fundamentals of corrosion and degradation behavior of materials. The degradation of metals, polymers and composites will be discussed. Monitoring and life prediction techniques will be covered. Preventive measures such as a materials selection and design, protective coating, surface treatments, inhibitors, and electrochemical techniques are applied, when they should be used, and how various techniques can be integrated to solve complex problems. (AY).
Restriction(s): Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

ME 592 Fuel Cells  3 Credit Hours
This course covers fundamentals of fuel cell systems for both automotive and distributed power applications. Detailed descriptions of the principles and component designs of various types of fuel cells including proton exchange membrane fuel cell (PEMFC), phosphoric acid fuel cell (PAFC), solid oxide fuel cell (SOFC), and molten carbonate fuel cell (MCFC). Discussions on water and thermal management, and balance of power plant. Review of hydrogen storage and safety consideration. Challenges and future opportunities.
Restriction(s): Can enroll if Class is Graduate
Can enroll if College is Engineering and Computer Science

ME 593 Powder Materials & Processing  3 Credit Hours
A lecture course that provides a comprehensive understanding of the theory and principles, the associated synthesis, processing, and characterization techniques; and the applications of powder and particulate materials. The students will gain knowledge of the following: fundamentals of powder and particulate materials (metals and ceramics), various metallic and non-metallic powder synthesis/production techniques, diverse techniques of powder characterization, and the principles and methods of homogenization, compaction, and sintering. Students will be exposed to the relevant criteria for designing parts/components based on powder and particulate materials and, will familiarize themselves with a wide range of applications as structural, functional, and biomedical components made of metallic, ceramic, and composite powders in various industries. (OC)
Restriction(s): Can enroll if Level is Graduate or Rackham or Doctorate
Can enroll if College is Engineering and Computer Science
Can enroll if Major is Mechanical Engineering

ME 595 Digital Manufacturing  3 Credit Hours
This combined lecture and hands on project course aims to train students to optimize the interplay of materials, people, machines and profitability. The course introduces methods to identify product concepts with commercial potential. Student teams will perform market analysis and explore the intellectual property space around their ideas and rapidly iterate them into a final prototype via direct digital manufacturing (e.g., 3D CAD/CAM files manifested via digital printing or machining). Advanced instruction on direct digital manufacturing tools will be given, and customer response will be used as feedback. Early stage prototypes will progress into more sophisticated designs, scaling up (cost, pricing, tooling, process flow and automation) scenario planning for mass manufacturing as well as Failure Mode Effect Analysis (FMEA) will be discussed. (W,YR)
Restriction(s): Can enroll if Level is Graduate or Doctorate or Rackham
Can enroll if College is Engineering and Computer Science

ME 596 Internal Combustion Engines I  3 Credit Hours
Comparison of several forms of internal combustion engines including Otto and Diesel type piston engines; performance parameters and testing; thermodynamic cycles and fuel-air cycles; combustion in SI and Diesel engines; charge formation and handling; ignition; elements of exhaust emissions. (Not available to students with ME 496 or equivalent background.)
Restriction(s): Can enroll if Level is Graduate or Rackham

ME 597 Internal Combustion Engines II  3 Credit Hours
Fuel flow and air flow measurements and techniques; engine maps; fuel and ignition control and control strategies; combustion and burn rate considerations in engine design; intake and exhaust systems; emissions and control strategies; emission test procedures.
Prerequisite(s): AENG 596 or ME 596
Restriction(s): Can enroll if Level is Graduate or Rackham

ME 598 Engine Emissions  3 Credit Hours
This course introduces students to the fundamentals of engine exhaust emissions, including their formation mechanisms and abatement techniques. The students will be familiarized with the present emission control technologies and future challenges. The topics covered include: engine emissions and air pollution; review of emission regulations; catalyst fundamentals; catalyst aftertreatment techniques for gasoline, diesel, and lead-burn engines; discussion of cold start emission control and breakthrough catalytic technologies. (AY).
Restriction(s): Can enroll if Level is Rackham
Can enroll if College is Engineering and Computer Science

ME 600 Study or Res in Sel Mech Eng  1 to 3 Credit Hours
Individual or group study or design in an area of Mechanical Engineering under the supervision of a member of the graduate faculty. The student will submit a report on the project and give an oral presentation to a panel of faculty members at the close of the term. Graduate standing or special permission. (YR).
Restriction(s): Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

ME 601 Exper Research in Mech Eng  1 to 3 Credit Hours
Laboratory investigation in an area of Mechanical Engineering under the supervision of a member of the graduate faculty. The student will submit a report on the project and give an oral presentation to a panel of faculty members at the close of the term. Graduate standing or special permission. (YR).
Restriction(s): Can enroll if Class is Graduate
Can enroll if Level is Rackham or Graduate

ME 602 Guided Study in Mech Eng  1 to 6 Credit Hours
Independent Study of specified material in an area of Mechanical Engineering under the guidance of a member of the graduate faculty. The student will submit a report on the project and give an oral presentation to a panel of faculty members at the close of the term.
Restriction(s): Can enroll if Class is Graduate
ME 607  Adv Mechanical Engin Problems  3 Credit Hours
A graduate-level analytical study of selected topics in mechanical engineering. The subjects of study in each term usually depend on student and instructor interest. Typical areas of study include vibrations of continuous or lumped systems, fluid mechanics, devices, thermodynamics, heat transfer, mechanics of solids, materials, or processing, etc. The course can be organized to meet the subject needs of a group of students with mutual interests.

Restriction(s):
- Can enroll if Class is Graduate
- ME 510

ME 610  Finite Elem Methods--Nonlinear  3 Credit Hours
Review of FE theory in linear static. FEA in dynamics. FEA in heat transfer. FEA in fluid mechanics. FEA in nonlinear problems; material and geometrical nonlinearities, total and updated Lagrangian formulations, solution techniques. Use of FE codes. Graduate standing or special permission. (YR).

Prerequisite(s): ME 510
Restriction(s):
- Can enroll if Class is Graduate

ME 622  Adv Topics in Fluid Mechanics  3 Credit Hours
The course presents selected topics of contemporary advanced fluid mechanics, such as the hydrodynamic stability theory, turbulence, multi-phase flows, magnetohydrodynamics, interfacial flows, flows of non-newtonian fluids, micro- and nano-fluid mechanics, biofluid mechanics, etc.

Prerequisite(s): ME 522
Restriction(s):
- Can enroll if Class is Graduate
- Can enroll if Level is Doctorate or Rackham or Graduate
- Can enroll if Program is MSE-Automotive Engineering, PHD-Automotive Engineering, MSE-Mechanical Engineering

ME 640  Advanced Vibration Theory  3 Credit Hours
The course will emphasize the similarities between various types of continuous systems as well as common features of continuous and discrete systems. Variational principle will be introduced as a notion of natural modes of vibration for discrete systems is reviewed. Natural modes of vibration for continuous systems will be discussed using the boundary value formulation, the general formulation of the eigenvalue problem and orthogonality. These concepts will be applied to bars, rods, membranes, and plates. Approximate methods will be introduced to determine the natural modes of vibration for complex continuous systems. A few methods to be considered include the Rayleigh-Ritz, Galerkin, Collocation, Myklestad, and Lumped-parameter methods. All the approximate methods presented will allow expedient numerical solution by means of high-speed computers. The damped and undamped response to deterministic excitations will be considered for various systems. Graduate standing or special permission. (YR).

Prerequisite(s): ME 540
Restriction(s):
- Can enroll if Level is Graduate or Rackham

ME 642  Simulation of Mechanic Systems  3 Credit Hours
Analysis, synthesis, and optimization of linear, multilinear and nonlinear mechanical systems with the electronic analog computer. Graduate standing or special permission. (YR).

Prerequisite(s): ECE 365
Restriction(s):
- Can enroll if Level is Rackham or Graduate

ME 699  Master's Thesis  1 to 6 Credit Hours
Graduate students electing the course, while working under the general supervision of a member of the department faculty, are expected to plan and carry out the work themselves and submit a thesis for review and approval, and also present an oral defense of the thesis. Students must satisfactorily complete 6 credit hours in ME 699, but these hours may be spread over more than one term. Graduate standing or special permission. (YR).

Restriction(s):
- Can enroll if Class is Graduate

ME 798  Doctoral Seminar  0 Credit Hours
After attaining candidacy, every Ph.D. students is required to attend and actively participate in research seminars given by CECS Dean's office or individual departments in CECS. A student gets a satisfactory grade if he/she attends at least two research seminars during the course period.

Restriction(s):
- Can enroll if Level is Doctorate
- Can enroll if Major is Mechanical Engineering, MSE-Mechanical Engineering

ME 800  Pre-Cand Dissertation Research  1 to 9 Credit Hours
Full Title: Pre-Candidate Dissertation Research Dissertation work by a pre-candidate student in Mechanical Sciences and Engineering program conducted under guidance of the faculty advisor. (F,W,S)

Restriction(s):
- Can enroll if Level is Doctorate
- Can enroll if Major is Mechanical Engineering Program conducted under guidance of the faculty advisor. (F,W,S)

ME 980  Pre-Cand Dissertation Research  1 to 9 Credit Hours
Dissertation work by a student of the Ph.D. in Mechanical Sciences and Engineering Program conducted under guidance of the faculty advisor. The student must be admitted to the Ph.D. candidacy status.

Restriction(s):
- Can enroll if Level is Doctorate
- Can enroll if Major is Mechanical Engineering Program conducted under guidance of the faculty advisor. (F,W,S)

ME 990  Doctoral Thesis  1 to 9 Credit Hours
Dissertation work by a student of the Ph.D. in Mechanical Sciences and Engineering Program conducted under guidance of the faculty advisor. The student must be admitted to the Ph.D. candidacy status.

Restriction(s):
- Can enroll if Level is Doctorate
- Can enroll if Major is Mechanical Sciences and Engineering Program conducted under guidance of the faculty advisor. (F,W,S)

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
- (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Microbiology (MICR)

MICR 505  Applied & Environ Microbiology  3 Credit Hours
Advanced treatment of the interplay of microorganisms and the environment. Topics will include soil and water microbiology (bacteria, archea, fungi, algae) and plant-microbe interactions (pathogenic and symbiotic) as well as the role of microorganisms in decomposition, nutrient cycling, and bioremediation. Three hours lecture. Students cannot receive credit for both BIOL/MICR 405 and MICR 505. (W, AY)

Restriction(s):
- Can enroll if Level is Rackham or Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
Modern & Classical Language (MCL)

MCL 501  Images of Women in Germany  3 Credit Hours
This course will focus on the position of women in Germany after WWII and up to and after the unification of East and West Germany. Particular attention will be given to the gendered history of working within the National Socialist past, the division and reconstruction of the two nation-states, and the terrorism in West Germany in the 1970’s. Students will examine images of women in films and tie them to the ideologies of gender and status of women in these larger issues of German history. Course readings will be in English. Additional assignments will distinguish this course from its undergraduate version. Students cannot receive credit for both MCL 401 and MCL 501.

Restriction(s):
Can enroll if Class is Graduate

MCL 555  This American Life  3 Credit Hours
The course "This American Life: Immigrant Literature and the American Dream" is a literary and cultural analysis of the literature of immigration. The readings are from works of fiction in a variety of genres, and are written by American and non-American prize-winning authors. Their common denominator is the pursuit of the American Dream and its many multifaceted aspects. The themes explored include: assimilation, acculturation, diversity, language, subculture, intertextuality, nostalgia, belonging, and double identity. This course will be distinguished from its undergraduate counterpart, MCL 455, by the inclusion of additional readings and assignments.

Restriction(s):
Can enroll if Class is Graduate

NSCI 515  Nutrition and Health  3 Credit Hours
The influence of nutrition on physical and mental development from conception to adulthood. Topics include: 1) definition and function of the essential nutrients for people, 2) basic principles of human growth and development, 3) the causes and consequences of under- and over-nutrition, 4) feeding practices for infants and children and the development of food habits, 5) nutrient and food problems in the local region and in global perspective. Additional reading assignments or projects will distinguish this course from its undergraduate version NSCI 415. Students cannot receive credit for both NSCI 415 and NSCI 515. (YR).

Prerequisite(s): ANTH 101
Restriction(s):
Can enroll if Class is Graduate

NSCI 531  Adv Learning Inquiry: Phys Sci  3 Credit Hours
This course is designed to provide in-service teachers with additional tools and knowledge to teach physical science concepts to elementary and middle school students. Topics selected from the science benchmarks in the Michigan Curriculum Framework (MCF) will be explored at significant depth. Students will be expected to integrate major themes of the physical sciences and understand how the topics covered in the course fulfill the National Science Education Standards (NSES) and the MCF. The learning cycle and inquiry methods of instruction will be modeled and students will be expected to use these in their assignments. (YR).

Prerequisite(s): NSCI 231
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if College is Education, Health, and Human Services

NSCI 532  Adv Learning Inquiry: Earth/Planet Sci  3 Credit Hours
This course is designed to provide in-service teachers with additional tools and knowledge to teach the concepts of Earth and planetary science to elementary and middle school students. Topics selected from the science benchmarks in the Michigan Curriculum Framework (MCF) will be explored at significant depth. Students will be expected to integrate major themes of the physical sciences and understand how the topics covered in the course fulfill the National Science Education Standards (NSES) and the MCF. The learning cycle and inquiry methods of instruction will be modeled and students will be expected to use these in their assignments. (YR).

Prerequisite(s): NSCI 232
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Graduate
Can enroll if Level is Graduate or Rackham

NSCI 533  Adv Inquiry: Life Science  3 Credit Hours
This course is designed to provide in-service teachers with additional tools and knowledge to teach biological science concepts to elementary and middle school students. Topics selected from the science benchmarks in the Michigan Curriculum Framework (MCF) will be explored at significant depth. Students will be expected to integrate major biological themes and understand how the topics covered in the course fulfill the National Science Education Standards (NSES) and the MCF. The learning cycle and inquiry methods of instruction will be modeled and students will be expected to use these in their assignments. (YR).

Prerequisite(s): NSCI 233
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Can enroll if Level is Graduate or Rackham
Can enroll if College is Education, Health, and Human Services

NSCI 598  Independent Study in NSCI  1 to 3 Credit Hours
Provide an opportunity for students to pursue graduate level independent library-based research under the direction of a faculty member. For students who wish to study an area that is interdisciplinary rather than an area focused on a specific science. The student and the faculty member must complete a contract outlining the area to be studied and the product of the research. The project must be approved by the program director and the faculty member before students register for the course.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters
NSCI 599 Laboratory Research in NSCI 1 to 3 Credit Hours
Provide an opportunity for students to pursue graduate level independent laboratory-based research under the direction of a faculty member. For students who wish to study an area that is interdisciplinary rather than an area focused on a specific science. The student and the faculty member must complete a contract outlining the area to be studied and the product of the research. The project must be approved by the program director and the faculty member before students register for the course.

Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Operations Management (OM)

OM 521 Operations Management 3 Credit Hours
Operations Management is concerned with the efficient transformation of inputs that will effectively achieve customer satisfaction. In dynamic, competitive world, a company's effectiveness depends significantly on how well the firm's resources are managed. This course focuses on managerial tools for understanding the processes that are required for developing and delivering appropriate products and services. It prepares managers to use the results of analysis to constantly improve the firm's operational performance.

OM 571 Supply Chain Management 3 Credit Hours
This course aims to develop an understanding of key devices of global operations management performance and their interrelationship with the firm's strategy. Special emphasis is given to tools and skills necessary to develop solutions for a variety of supply chain design problems and interfirm and intra-firm coordination issues. The overarching course objective is to develop and in-depth understanding of integrative managerial issues and challenges related to developing and implementing a firm's operations strategy.

Prerequisite(s): (OM 521 or IMSE 580 or EMGT 520) and (DS 520 or IMSE 514) and MIS 525

OM 631 Service Operations Management 3 Credit Hours
This course examines both traditional and new approaches for achieving operational competitiveness in service businesses. Major service sectors such as health care, banking and financial services, transportation, restaurants, hotels, and resorts are examined. The course addresses both strategic and operational decision making. Among topics covered are: the service concept and operations strategy, design of effective service delivery systems, productivity and quality management, response time (queuing) analysis, capacity planning, yield management, and the impact of information technology.

Prerequisite(s): OM 521 or IMSE 580 or EMGT 520

OM 660 Analy & Des of Supply Chains 3 Credit Hours
The purpose of this course is to equip the student with the ability and the tools necessary to recognize, analyze, and resolve significant problems in the operation of a supply chain system through the application of quantitative techniques. This course focuses on the strategic role of the supply chain, key strategic drivers of supply chain performance, and the tools and techniques for supply chain analysis.

Prerequisite(s): OM 521 or IMSE 580 or EMGT 520

Restriction(s):
Can enroll if Class is Graduate

OM 661 Supply Chain Logis Mgmt 3 Credit Hours
The overarching course objective is to develop and in-depth understanding of integrative managerial issues and challenges related to developing and implementing a firm's logistics strategy. Attention is directed to the logistical mission confronted by varied types of business organization. Logistics is positioned as a value-added process that achieves time and place synchronization of demand stimulation and operations fulfillment. Emphasis will be placed on challenges related to providing logistical support for procurement, manufacturing and market-distribution.

Prerequisite(s): OM 521 or IMSE 580 or EMGT 520

Restriction(s):
Can enroll if Class is Graduate

OM 662 New Prod Design & Development 3 Credit Hours
The objective of this course is to provide students with an in-depth knowledge of frameworks, policy, and issues that arise in the design and development of new products. In particular, the integration of a development chain with a supply chain forms the basis of knowledge offered in this course. A development chain is the set of activities and processes associated with new product introduction. It includes the product design phase, the associated capabilities and knowledge that need to be developed internally, sourcing decisions, and production plans. Specifically, the development chain includes decisions such as product architecture; what to make internally and what to buy from outside suppliers, that is, make/buy decisions; supplier selection; early supplier involvement; and strategic partnerships. The decisions made in the development chain will have an impact on the supply chain. Similarly, the characteristics of the supply chain must have an impact on the product design strategy and hence on the development chain.

Prerequisite(s): OM 521 or IMSE 580 or EMGT 520

Restriction(s):
Can enroll if Class is Graduate

OM 663 Lean & Six Sigma 3 Credit Hours
This course covers implementing Total Quality Management (TQM), undertaking Six Sigma Projects, and applying Baldridge National Quality Award criteria and ISO 9000 principles to improve quality performances in an organization. Topics include Definitions and Importance of Quality, Quality Costs, Quality Function Deployment (QFD), Product Specification and Critical-to-quality Measures (CQM), Statistical Quality Control (SQC), Robustness Concepts, Quality System Design and Evaluation. Six Sigma and DMAIC Methodologies, Design for Six Sigma (DFSS) process, IDOV (Identity requirements, Design alternatives, Optimize the design and Verify process capability) Methodology, and several other concepts and tools related to quality are also covered.

Prerequisite(s): DS 520 or IMSE 514

Restriction(s):
Can enroll if Level is Rackham or Graduate
OM 664 Strategic Sourcing 3 Credit Hours
This course presents the integrative role of procurement function within the business organization. Specific topics addressed from strategic, financial, and global perspectives include purchasing process, procurement and commodity strategy, insourcing/outsourcing, supplier evaluation and selection, supplier management and development, global sourcing, cost and price analysis, negotiation and contract management. Both theoretical and quantitative perspectives will be offered in covering these topics. Learning will be emphasized through review of articles published in academic and professional journals; discussion of case studies focusing on problems and issues involving sourcing; formulation of sourcing models using statistical and optimization software; and application of various problem-solving algorithms; and working on a term project focusing on investigating a key sourcing problem.
Prerequisite(s): OM 521 or IMSE 580 or EMGT 520
Restriction(s):
Can enroll if Class is Graduate

OM 665 IT in SCM 3 Credit Hours
This course covers concepts in enterprise resource planning (ERP). The main focus of this course is to show how ERP systems integrate business processes across functional areas and support business management and performance analysis. This course will also examine how ERP systems evolved from early computer systems and manufacturing, and will evaluate the benefits and costs of implementing an ERP system. Example software, such as SAP, will be used extensively to illustrate how ERP systems work. Learning will be emphasized through review of articles published in academic and professional journals; discussion of case studies focusing on problems and issues involving enterprise resource planning; application of various problem-solving algorithms such as in forecasting and inventory management; and working on a term project focusing on investigating a key enterprise resource management problem.
Prerequisite(s): (OM 521 or IMSE 580 or EMGT 520) and MIS 525
Restriction(s):
Can enroll if Class is Graduate

OM 666 Sustainable Supply Chain Mgmt 3 Credit Hours
This course describes various issues and problems encountered in designing and maintaining a supply chain that deals with environmental concerns of product disposal, and re-manufacturing. Various types of sustainable supply chains, such as green supply chain, reversible supply chain, closed-loop supply chain etc., will be discussed along with tools and techniques to design and manage them.
Prerequisite(s): (OM 521 or IMSE 580 or EMGT 520) and MIS 525
Restriction(s):
Can enroll if Class is Graduate

---

Organizational Behavior (OB)

OB 510 Organization Behavior 3 Credit Hours
A survey course which provides a basic understanding of individual, inter-personal and group behavior in organizations, and its application in the practice of management. Topics include: personality and attitudes, motivation, groups and teams, leadership, power, ethics, structure and organizational design, culture, and decision-making.
Restriction(s):
Can enroll if Class is Graduate

OB 560 Management Skills Development 3 Credit Hours
To present the concepts, problems, and techniques of managing the human resources of an organization with emphasis on application and skill building. Topics include skills development for interviewing, counseling, and appraising employees; work team leadership and development of inter-group relationships, and conflict resolution.
Prerequisite(s): OB 510 or EMGT 545

OB 610 Intrnatl Dimensions of Managmt 3 Credit Hours
This course aims to provide a systemic review of international environmental forces and their influence on all management areas of corporate entities. Emphasis is places on the issues confronting managers in international arenas as they attempt to plan, organize, staff and control global operations of multinational companies. The course will offer in-depth coverage of managing organizations in the global context, including issues related to cross-cultural management.
Prerequisite(s): OB 510 and BE 530 and MKT 515

OB 612 Org Change & Development 3 Credit Hours
To introduce theories, methods, and practice of organizational change and development; to provide a conceptual framework for examples of planned organizational change. Topics include: sub-processes in organizational change, intervention methods, sequencing and integration of change processes, change roles and role relations, change objectives and criteria.
Prerequisite(s): OB 510 or EMGT 545

---

Philosophy (PHIL)

PHIL 542 Medical Ethics 3 Credit Hours
Issues in medical ethics are among the most exciting and the most urgent in the world today. This course will explore some of these issues: the relationship between patient and health caregiver (truth-telling, informed consent, the right to refuse treatment, confidentiality); assisted suicide and euthanasia; treatment of defective newborns; scarce resources, social justice and the right to health care; cloning and genetic manipulation; new reproductive technologies; and others. We will discuss issues from the standpoint of patients, medical professionals, and citizens who shape policy in a democratic society. Ethical theories and concepts will be stressed. (F, YR)
Prerequisite(s): PHIL 240
Restriction(s):
Can enroll if Class is Graduate
Physics (PHYS)

PHYS 503  Electricity & Magnetism  3 Credit Hours
The study of electrostatics, magnetostatics, and electrodynamics using Maxwell's equations. The course focuses on the development of Maxwell's equations from observation and experiment and on the application of these equations to electromagnetic phenomena. Additional reading assignments and/or projects will distinguish this course from its undergraduate version PHYS 403. Students cannot receive credit for both PHYS 403 and PHYS 503. (W)
Prerequisite(s): (MATH 205 or MATH 215) and PHYS 151
Restriction(s):
Can enroll if Class is Graduate

PHYS 553  Quantum Mechanics  3 Credit Hours
A course in non-relative quantum mechanics emphasizing the basic postulates of quantum theory, the concepts of eigenstates and eigenvalues, and the role and use of operators and communication relations in the development of the subject. Application of the Schrodinger and Heisenberg formalisms to the solution of single-particle systems subject to a variety of potential functions, including simple step/barrier potentials, the harmonic oscillator potential and the Coulomb potential, will be made. Additional reading assignments and/or projects distinguish this course from its undergraduate version PHYS 453. Students cannot receive credit for both PHYS 453 and PHYS 553.
Prerequisite(s): MATH 216 and PHYS 305
Restriction(s):
Can enroll if Class is Graduate

PHYS 590  Topics in Physics  1 to 4 Credit Hours
Topics in Physics. (OC).
Restriction(s):
Can enroll if Class is Graduate

PHYS 590A  Topics in Physics  1 Credit Hour
TOPIC TITLE: Force and Motion Elementary school teachers will develop definitions of position, velocity, and acceleration that are consistent with the scientific usage of these terms, interpret graphs of position, velocity, and acceleration versus time, develop a definition of force that can be applied to objects both at rest and moving, and relate the net force to the change in motion of the object. Participants will experience motion themselves and see it displayed on a computer in real time. Methods of teaching conceptual change will be modeled.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Political Science (POL)

POL 513  American Constitutional Law  3 Credit Hours
A major theme of this course is the development of the constitution, especially focusing on the themes of judicial review: judicial self-restraint and judicial activism; the expansion of executive and legislative powers; and the rise of “substantive due process of law”. Prerequisite or equivalent recommended. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY).
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Class is Graduate

POL 514  Civil Rights and Liberties  3 Credit Hours
An analysis of the Bill of Rights and the 14th Amendment, with particular emphasis upon recent landmark or controversial Supreme Court decisions dealing with freedom of speech and religion, rights of criminal defendants; cruel and unusual punishment, right to privacy; civil rights and equal protection clause; and apportionment. Prerequisite or equivalent recommended. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Class is Graduate

POL 517  Constitution & National Security  3 Credit Hours
This course focuses on the issue of national security and how the federal government has used power to protect its citizens. It analyzes relevant national security issues in order to understand how government action is constrained by the Constitution and social norms. The course examines the historical development of national security in the United States including habeas corpus, wiretapping, military tribunals, state secrets, and extraordinary rendition. Particular close attention is paid to the modern development of national security. The emphasis in reading will be on cases, executive orders, congressional hearings, and statutes. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research.
Restriction(s):
Can enroll if Class is Graduate

POL 550  Revolution  3 Credit Hours
A consideration of violent political change and the conditions which promote it. The course covers both revolutionary theories and empirical research. Specific revolutions are considered. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. Students cannot receive credit for both POL 450 and POL 550. (YR).
Restriction(s):
Can enroll if Class is Graduate

POL 551  Peace and War  3 Credit Hours
An examination of the causes of war and the means of securing peace. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (YR).
Restriction(s):
Can enroll if Class is Graduate
POL 560  Science, Tech & Pub Policy  3 Credit Hours
This course explores the intersection of science, technology, and public policy. Scientific knowledge and technological innovations are exceptionally powerful resources for policy-makers and for societies; they also pose great challenges and risks. This course will look at how science and technology affect the pursuit of policy goals in areas such as public health, environmental sustainability, economic growth, and national security. Students will not receive credit for more than one of POL 460, POL 560, and PPOL 560.

POL 566  Politics & Policies Soc Welfare  3 Credit Hours
FULL TITLE: The Politics and Policies of Social Welfare. The course examines the relationship between politics and public policy as related to the provision of social welfare programs in the United States. 
Restriction(s):
Can enroll if Level is Graduate

POL 571  American Foreign Policy I  3 Credit Hours
American foreign policy in Western Europe, Russia, and Latin America. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY).
Prerequisite(s): POL 101 or POL 201
Restriction(s):
Can enroll if Class is Graduate

POL 572  American Foreign Policy II  3 Credit Hours
American foreign policy in the non-western world. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (OC).
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Class is Graduate

POL 573  International Security Affairs  3 Credit Hours
International Security is a branch of world politics concerned with the threats, primarily military in nature, to the peace and security of the nation, states, and the international community. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY).
Prerequisite(s): POL 101
Restriction(s):
Can enroll if Class is Graduate

POL 584  Revitalizing Cities  3 Credit Hours
What have we done to address decline in city neighborhoods and downtowns? Why? How has it worked? Why? what's the hope for the future? This course uses a public policy lens to engage students in a quest for answers to these questions. (YR)
Restriction(s):
Can enroll if Level is Rackham or Graduate

POL 587  Comparative Enviro Policy  3 Credit Hours
This course explores environmental policy as a result of political processes involving diverse participants and entailing movement through several stages from defining an issue as an environmental problem to placing it on a political agenda and then receiving a response at domestic governmental or international levels. This course analyzes environmental issues from a cross-cultural and comparative perspective, with a particular attention given to political institutions, political change, levels of development, political culture, public participation, and international commitments that shape the nature and dynamics of environmental politics and policy in different countries. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research.
Restriction(s):
Can enroll if Class is Graduate

POL 589  Seminar in Urban Politics  3 Credit Hours
Selected topics in urban politics. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research.
Restriction(s):
Can enroll if Class is Graduate

POL 590  Topics in Political Science  1 to 3 Credit Hours
Problems and issues in selected areas of political science. Title changes according to content. Courses may be repeated when specific topic differs. (OC)

POL 591  Seminar in Political Science  3 Credit Hours
Selected topics in political science. Course may be repeated for credit when topics differ. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (AY).
Restriction(s):
Can enroll if Class is Graduate

POL 592  Seminar in Political Analysis  3 Credit Hours
An advanced in-depth look at the problems and techniques of empirical research. Gives special attention to research design, data collections, measurement, and validity. Statistics for social scientists will also be covered. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (OC).
Restriction(s):
Can enroll if Class is Graduate

POL 598  Directed Studies  1 to 6 Credit Hours
Directed individual study of any subject agreed upon by the student and the instructor. May not duplicate a formal course offering. (F, S, W).

POL 599  Directed Studies  1 to 6 Credit Hours
Directed individual study of any subjects agreed upon by the student and the advising instructor, which shall not duplicate a formal course offering. This course is distinguished from its 400 level counterpart by the requirement of additional readings and research. (F, W, S).
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Professional Education (PDED)

PDED 505  Sp Ed Legisltn and Litigation  3 Credit Hours
Content traces the historical development of special education through landmark litigation and legislation, parent advocacy, and national economic and social needs. The provisions of federal and state special education mandates, judicial interpretations, and Michigan state guidelines regulating the delivery of educational and vocational services to persons with handicaps will also be addressed.
Prerequisite(s): EDC 501 or EDN 520
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Education, Health, and Human Services
PDED 515  Museum Resources for Teaching  3 Credit Hours
Explores the use of museums as educational resources by elementary and secondary teachers. Various museums in the greater Detroit metropolitan area will be visited and studied. Students will review how to plan educational trips and how to use museum resources in meeting their own particular individual needs.
Restriction(s):
Can enroll if Class is Junior or Graduate
Can enroll if College is Education, Health, and Human Services

PDED 516  Internship in Museum Education  2 or 3 Credit Hours
The museum education internship will prepare students with the knowledge and skills they need to plan, implement, and evaluate educational and interpretive programs in the context of museums. The educational functions of museums will be explored. The students will apply their knowledge and experiences to K-12 instruction in the core content areas.
Restriction(s):
Can enroll if College is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if Level is Graduate or Rackham or Professional Development
Can enroll if College is Education, Health, and Human Services or Arts, Sciences, and Letters

PDED 518  Tchg Mid Sch Math/Spec Needs  1 to 3 Credit Hours
This course is intended to introduce students to the characteristics and assessment of persons with ASD, as well as the best practices related to educating students with Autism Spectrum Disorders (ASD). Specifically, students will learn evidence-based practices for assessing students with ASD, creating an appropriate educational environment for students with ASD, and providing academic instruction and behavioral interventions to students with ASD in special education and general education settings. Instruction will emphasize specific assessment and teaching tools and behavior management principles and practices associated with educating K-12 students with ASD.
Prerequisite(s): EDD 512
Restriction(s):
Can enroll if College is Education, Health, and Human Services

PDED 518A  Topics in Education  2 Credit Hours
TOPIC TITLE: Application of Distance Learning. Overview of common types of distance learning covering advantages, disadvantages, and relative costs. Discussion of research regarding student achievement and satisfaction, learner characteristics, and necessary factors for success. Students demonstrate a videoconference lesson, create an internet lesson and write research for internet publication. This course is part of the Adult Instruction and Performance Technology program and activities are based on the Instructional Design Process.
Prerequisite(s): EDT 512 or EDT 400

PDED 518B  Topics in Education  1 Credit Hour
TOPIC TITLE: Transdisciplinary Team to Support students with Challenging Behaviors. This course explores the concept of transdisciplinary teaming for the purpose of supporting children/youth with challenging behaviors. Topics of study in this course include multi-level systems for preventing and remediating inappropriate behaviors, school-wide, class-wide, and individual research-based interventions including Functional Behavior Assessment (FBA).

PDED 518C  Topics in Education  2 Credit Hours
TOPIC TITLE: Teaching Geometry in Secondary School. This summer institute in geometry is modeled after the High School Teacher Program of the Park City Mathematics Institute. The high school teachers from Michigan who are involved in that program will lead sections which enhance teachers' understanding of geometry topics relevant to the new standards, pedagogy that enhances student learning of geometry and the application of technology to the teaching of geometry. Students will complete a project based on the institute.

PDED 518D  Topics in Education  1 Credit Hour
TOPIC TITLE: Technology in Education - Module 1: Teaching and Learning with Basic Technology Skills. The primary focus will be to develop and utilize courseware and class management materials using the word processor, spreadsheet, database, and presentation applications.

PDED 518E  Topics in Education  1 Credit Hour
TOPIC TITLE: Technology in Education - Module 2: Teaching and Learning with the Internet. Participants will cover the basics of electronic communication, the use of the World Wide Web, the creation of Web pages and Web-based activities, and the issues related to the use of the Internet in schools.

PDED 518F  Studies in Education  1 Credit Hour
TOPIC TITLE: Technology in Education - Module 3: Teaching and Learning with Multimedia. Use of the computer to combine text, sound, video, still images, animation, and interactivity to create constructive problem solving will be covered.

PDED 518H  Studies in Education  1 to 2 Credit Hours
TOPIC: Intervention Strategies for Young Children with Disabilities. Participants will gain knowledge of ways to plan for and address individualized goals in early education settings. Emphasis will be on developing functional goals and objectives, intervening during classroom routines and activities, and using naturalistic strategies which promote language, social and cognitive development.

PDED 518J  Studies in Education  1 to 2 Credit Hours
TOPIC: Designing Instruction for the Internet. The course is designed for teachers who are competent in word processing and familiar with the Internet and web searches. Each teacher or graduate student will experience Internet learning through a guided lesson introduced them to UM-D's electronic resources, various teacher oriented web-pages, sample Internet lessons, and guide them through an initial search for possible topics of their own Internet lesson.

PDED 518K  Studies in Education  1 to 2 Credit Hours
TOPIC: Positive Guidance Techniques for Classroom Management. This workshop will help teachers in early childhood education to apply positive guidance techniques in their classrooms. Strategies that actively promote prosocial behavior and that change inappropriate misbehavior will be discussed. Participants will develop methods of structuring a positive classroom atmosphere in order to facilitate appropriate social behavior, learn techniques to guide and directly teach positive social skills, and learn and practice conflict resolution strategies.
Psychology (PSYC)

PSYC 505  Gender Roles  3 Credit Hours
This course will investigate the development of gender roles in childhood and adolescence due to either innate physiological differences or sociological patterning, the effect of gender roles upon male-female relationships within our society, and the possibility of transcending sociological gender roles in alternate modes of living. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 405. Students cannot receive credit for both PSYC 405 and PSYC 505. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or SOC 201 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 507  Psychology of Adolescence  3 Credit Hours
Considers adolescence as an interaction of rapid biological and social change. Examines the theoretical and empirical literature in some detail. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 407. Students cannot receive credit for both PSYC 407 and PSYC 507. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 512  Psychology of Aging  3 Credit Hours
This course examines development of the individual from middle adulthood through old age. Special emphasis is given to the understanding of developmental theories and issues in adulthood. Topics include biological basis, socialization, family relationships, personality, and intellectual development in the aging individual. (F,W)
Restriction(s):
Can enroll if Class is Graduate

PSYC 515  Lab in Developmental Psych  3 Credit Hours
An examination of research design and methodology as related to developmental psychology. Special emphasis will be given to training students in data collection techniques used in developmental research and in providing practical experience in designing and conducting research. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 415. Students cannot receive credit for both PSYC 415 and PSYC 515. (YR).
Prerequisite(s): PSYC 300 or PSYC 302 or PSYC 407 or PSYC 315 or PSYC 418 or PSYC 507 or PSYC 518
Restriction(s):
Can enroll if Level is Graduate

PSYC 518  Cognitive Development  3 Credit Hours
This course explores theories and methods in cognitive development focusing on Piaget’s theory and more recent significant conceptualizations. Topics include stages of cognitive development, types of inferential processes, and the acquisition of world knowledge. Discussions leading to the formation of new research ideas are emphasized. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 418. Students cannot receive credit for both PSYC 418 and PSYC 518. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate
PSYC 522  Psychology of Leadership  3 Credit Hours  
Analysis of theories and research findings in the field of leadership. Class will participate in and observe leadership-group interactions. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 422. Students cannot receive credit for both PSYC 422 and PSYC 522. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 523  Multicultural Counseling  3 Credit Hours  
This course will explore multicultural issues in counseling and clinical psychology. The central focus for this course will be ethnic and racial diversity, although attention will be given to gender, sexual orientation, age and socio-economic status as they relate to issues of diversity in counseling. Students will gain an appreciation of the complexities of the influence of culture on social, emotional, behavioral and cognitive development, and the major issues involved in assessment and treatment of diverse clients and their families. (F)
Restriction(s):
Can enroll if Class is Graduate

PSYC 530  Psychology in the Workplace  3 Credit Hours  
This course introduces students to some of the core content areas of Industrial/Organizational (I/O) psychology. These content areas include: selection, training, performance appraisal, work teams, job design, motivation, leadership, union-management relations, and stress and health in the workplace. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 4305. Students cannot receive credit for both PSYC 4305 and PSYC 530. (YR).
Prerequisite(s): HRM 405 PSYC 170 or PSYC 171 or OB 354 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 531  Organizational Entry  3 Credit Hours  
An in-depth consideration of the psychological aspects of the organizational entry process. Topics include recruitment, selection, orientation, socialization, and training. Additional reading assignments or projects will distinguish this course from its undergraduate version. Students cannot receive credit for both PSYC 431 and PSYC 531. (OC).
Restriction(s):
Can enroll if Class is Graduate

PSYC 532  Socialization of the Child  3 Credit Hours  
An in-depth consideration of some major social systems that affect the development of the child. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 432. Students cannot receive credit for both PSYC 432 and PSYC 532. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 540  Abnormal Psychology  3 Credit Hours  
An introduction to the field of psychopathology, the study of mental disorders. Includes exposure to a number of historical and theoretical perspectives, each with their own theories, methodologies, and treatment approaches. Disorders covered will include: anxiety and mood disorders, personality disorders, schizophrenia, sexual disorders, and psychosomatic disorders. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 440. Students cannot receive credit for both PSYC 440 and PSYC 540. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 542  Child Psychopathology  3 Credit Hours  
A review of the major psychological disorders of children from birth to adolescence. These disorders are considered from a clinical and theoretical point of view. In addition to an examination of causes, approaches to treatment and behavior modifications are considered. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 442. Students cannot receive credit for both PSYC 442 and PSYC 542. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 544  Personality Assessment  4 Credit Hours  
This is a course in methods of assessing personality. The theory and methods of observation, interviewing, and psychological testing are discussed and then employed in brief, individually-designed studies. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 4445. Students cannot receive credit for both PSYC 4445 and PSYC 544. (AY).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 545  Advanced Psychopathology  3 Credit Hours  
This course is designed for graduate students who require an advanced knowledge of psychological disorders and their diagnosis. Course content includes an overview of the symptoms, etiology, and treatment alternatives for major psychological disorders. The emphasis includes both an overview of research based knowledge and practical application of the current diagnostic system.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate
Can enroll if Program is MS-Psychology

PSYC 546  Human Sexual Behavior  3 Credit Hours  
A comprehensive review of facts about human sexuality. The emphasis is on psychological aspects of sex, but there is also a consideration of genetic, physiological, and anatomical aspects of sex, and contemporary issues. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 446. Students cannot receive credit for both PSYC 446 and PSYC 546. (AY).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 547  Therapeutic Intervention  4 Credit Hours  
This course provides an introduction to the theories, practice, and ethical issues in clinical psychology. The emphasis is on the application of psychotherapeutic processes. Topics include ethical practices, formation of a therapeutic relationship, use of basic counseling skills, differing clinical orientations, and a review of relevant research. (W)
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Program is MS-Psychology
PSYC 548  Psychological Assessment I  4 Credit Hours
This course is the first of a two-course sequence for graduate students who require an advanced knowledge of psychological assessment. Course content includes an overview of interviewing, behavioral observations, and personality tests used in clinical practice. The emphasis includes both an overview of research-based knowledge and practical application of assessment techniques through supervised lab experience. Only individuals admitted to the Clinical Health Psychology program can enroll. (S,YR)
Prerequisite(s): PSYC 545
Restriction(s):
Can enroll if Program is MS-Psychology

PSYC 549  Psychological Assessment II  4 Credit Hours
This course is the second of a two-course sequence designed for graduate students who require an advanced knowledge of psychological assessment. Course content includes an overview of tests and measures used in clinical practice, particularly those used in the assessment of intelligence, achievement, adaptive behavior, and child evaluation. The emphasis includes both an overview of research-based knowledge and practical application of assessment techniques through supervised lab experience. (F)
Prerequisite(s): PSYC 545
Restriction(s):
Can enroll if Class is Graduate

PSYC 550  Personality Theory  3 Credit Hours
A comparative review and examination of leading theories of personality, their basic concepts, similarities and differences, applications in clinical psychology, in education, social planning and in research. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 450. Students cannot receive credit for both PSYC 450 and PSYC 550. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 552  Adv Tech in Therapeutic Inter  3 Credit Hours
This course introduces clinical health psychology graduate students to the theory and application of cognitive-behavioral therapy and mindfulness therapies. The course is aimed at providing students with a thorough understanding of the theory behind these modalities, as well as the experiential application of the associated therapy techniques in a clinical setting.
Prerequisite(s): PSYC 547
Restriction(s):
Can enroll if Program is MS-Psychology

PSYC 555  Health Psychology  3 Credit Hours
A discussion of the research on health promotion, psychological factors in the development of illness, cognitive representations of health and illness, stress and coping, social support, nutrition and exercise. Focus will be on the factors related to the development and maintenance of optimal health. (YR).
Restriction(s):
Can enroll if Class is Graduate

PSYC 557  Advanced Health Psychology  3 Credit Hours
This course will examine the research on psychological factors associated with the development and/or progression of illness, as well as psychological and social factors in health promotion. Topics include cognitive and social representation of health and illness, stress and coping, factors and interventions for behavioral change and the development of healthy lifestyles, and the treatment of psychological and behavioral risk factors for illness.
Restriction(s):
Can enroll if Level is Graduate
Can enroll if Program is MS-Psychology

PSYC 561  Learning and Memory  3 Credit Hours
A consideration of major theories and research results related to learning and memory. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 461. Students cannot receive credit for both PSYC 461 and PSYC 561. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 563  Sensation and Perception  3 Credit Hours
Analysis of basic sensory and perceptual phenomena with a review of relevant behavioral and physiological literature. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 463. Students cannot receive credit for both PSYC 463 and PSYC 563. (YR).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 565  Ind&Grp Tech in Cln Hlth Psyc  3 Credit Hours
An introduction to the variety of assessment and intervention procedures used by health psychologists in medical settings; issues in medical consultation and liaison. Techniques discussed fall in areas such as stress management, smoking cessation, weight management, and the treatment and prevention of cardiovascular disease, cancer, and HIV/AIDS. The theoretical, conceptual, and empirical bases of intervention will be stressed. Prerequisites required or permission of instructor. Preference will be given to students enrolled in the Master of Science in Health Psychology Program. (YR).
Prerequisite(s): PSYC 547
Restriction(s):
Can enroll if Class is Graduate

PSYC 570  Advanced Physiological Psych  3 Credit Hours
Further study of the subject matter of PSYC 431. Advanced study of topics in the area of psychology. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 470. Students cannot receive credit for both PSYC 470 and PSYC 570. (YR).
Prerequisite(s): PSYC 370
Restriction(s):
Can enroll if Class is Graduate

PSYC 571  Reproductive Physio & Behavior  3 Credit Hours
An in depth examination of reproduction from a physiological viewpoint. Physiological topics include anatomy, hormones, and neural mechanisms. Psychological topics include behavior development and descriptions. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 471. Students cannot receive credit for both PSYC 471 and PSYC 571. (YR)
Prerequisite(s): PSYC 170 or PSYC 101 or PSYC 171
Restriction(s):
Can enroll if Class is Graduate
PSYC 572  Motivation and Behavior  3 Credit Hours
Study of the psychobiological aspects of motivated behavior. Topics include hunger, addiction, aggression, sleep, and achievement. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 4725. Students cannot receive credit for both PSYC 4725 and PSYC 572. (YR)
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

PSYC 574  Animal Intelligence  3 Credit Hours
Animal Intelligence involves the study of human and non-human animal behavior and cognition in an evolutionary and comparative framework. As an introduction to human and non-human animal cognition and though processes this course will examine topics such as problem-solving, spatial cognition, categorization, memory, number concepts, tool-use and tool-production, insight, imitation, social cognition, self-recognition and language(-like) behavior. In addition to discussing basic experimental findings about cognition in animals, an emphasis is placed on the logic and evidence used to justify theoretical conclusions. The course requires reading and critiquing original journal articles in addition to textbook chapters for foundational concepts.
Prerequisite(s): PSYC 372 or PSYC 363 or PSYC 461 or BIOL 419 or BIOL 456 or ANTH 336
Restriction(s):
Can enroll if Class is Graduate

PSYC 575  Bio Foundations of Health Psyc  3 Credit Hours
Advanced study of the anatomical, physiological, and chemical correlates of behavior and mental processes, including the relationships among brain and body function/structure (neurochemistry, histology, anatomy), psychological variables (motor behavior, motivation, emotion, perception, learning, memory), health, and mental and physical illness. Integrates experimental and clinical research methodologies. Prerequisites or permission of instructor. Preference will be given to students enrolled in the Master of Science in Health Psychology Program. (YR).
Prerequisite(s): PSYC 557 PSYC 555 or PSYC 455
Restriction(s):
Can enroll if Class is Junior or Senior or Graduate

PSYC 5825  Basic Methods Health Psych  3 Credit Hours
This course assumes a basic background in statistics and methodology and builds from there, with special emphasis on methodological issues and statistical techniques appropriate to Health Psychology. Computer skills related to statistical packages, databases, etc. will be stressed. Specific methods and analyses include multiple regression, ANOVA, ANCOVA, MANOVA, factor analysis, power, validity, experimental design, placebo effects, and random sampling. Preference will be given to students enrolled in the Master of Science in Health Psychology Program. (F).
Restriction(s):
Can enroll if Class is Senior or Graduate

PSYC 5835  Adv Methods Health Psych  3 Credit Hours
As a continuation of PSYC 5825, this course assumes a more advanced background in statistics and methodology. The course focuses on methodological issues and statistical techniques appropriate to Health Psychology. Computer skills related to statistical packages, databases, etc. will be stressed. Specific methods and analyses include survey research, program evaluation, epidemiological research, qualitative research, MANCOVA, multiple regression, logistic regression, cluster analysis, and meta-analysis. Preference will be given to students enrolled in the Master of Science in Health Psychology Program. (F).
Prerequisite(s): PSYC 5825
Restriction(s):
Can enroll if Class is Senior or Graduate

PSYC 584  Research Methods in Beh Med  3 Credit Hours
This course introduces graduate health psychology students to laboratory based research methods typically used in behavioral medicine. The focus is on laboratory methods of cardiovascular and pain research, specifically cardiovascular reactivity, heart rate variability, acute and chronic pain responses. The class also includes several special topics related to health psychology research (e.g., skin conductance, cortisol sampling, etc.). Students are responsible for physical implementation of research protocols, data analysis, and presentation of research findings.
Prerequisite(s): PSYC 557
Restriction(s):
Can enroll if Program is MS-Psychology

PSYC 585  Psychology Internship  3 Credit Hours
The psychology internship offers experience in a wide variety of placements dealing with human services. These include programs related to child abuse, crisis intervention, developmental disabilities, geriatrics, human resources/staff development, probation departments, teenage runaways, substance abuse, and women's issues. The program involves training in listening and helping skills. Written permission of instructor is required. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 485. (F,W).
Prerequisite(s): PSYC 170 or PSYC 171 or PSYC 101
Restriction(s):
Can enroll if Class is Senior or Graduate
### PSYC 588 Primatology Field Course  3 Credit Hours
This Primatology Field course will take students through an exploration of the scientific approach and methodology to the study of animal behavior. Students will gain experience in creating research projects and collecting data on free-ranging animals in a naturalistic environment. Preparation in lectures and activities on the campus of The University of Michigan-Dearborn will include learning about observational methods in detail, practicing developing ethograms and operational definitions, pilot data collection to modify the ethograms at the Detroit or Toledo Zoo, and use of GPS for data collection. Lecture materials will also cover topics of primate behavior and ecology. Students will spend a week observing a primate species (for example, one possible site for this field course may be to observe free-ranging lemurs at a reserve in Florida). Students' data collection at the field site will be for five continuous days. This field course provides a unique opportunity to study rare and endangered primates species in a safe and accessible environment. Short day trips to other facilities are possible, such as a visit to an ape sanctuary. Topics covered in this field course include advanced observational methods stemming from the field of Ethology, practical development of ethograms (checksheets) and research design, best practices in GPS data collection methods, and collating and summarizing data on animal behavior into a research paper. Lecture topics will address ethological methods and research design and also how to conduct research with free-ranging nonhuman primates. In addition there will be a strong focus on health and safety precautions in the field for human and nonhuman primates, acclimation to the field site, and practicalities of data collection. For graduate credit on this course, extra journal articles and longer written papers required than for the undergraduate requirements.

**Restriction(s):**
- Cannot enroll if Class is Freshman

### PSYC 590 Adv Topics in Psychology  1 to 3 Credit Hours
This course provides an introduction to the field of psychoneuroimmunology. This area of study is concerned with the multidirectional communication between psychological processes such as stress or depression and central/peripheral nervous system, endocrine system, and immune system functioning. Ultimately, this field seeks to understand the relative contribution of psychological processes to traditional disease states (cardiovascular disease, pregnancy complications, etc.). Students will learn the basic functioning of the immune system, and pathways via endocrine and nervous system functioning by which psychological processes influence immune functioning. Finally, students will learn the current state of research examining the relationship between psychological processes and disease outcomes. Students cannot receive credit for both PSYC 590 and PSYC 490.

**Prerequisite(s):** PSYC 455 or PSYC 555

**Restriction(s):**
- Can enroll if Class is Junior or Senior or Graduate

### PSYC 590E Advanced Topics in Psychology  2 Credit Hours
This topic: Research and Clinical Ethics. Provides graduate psychology students with extended examination of current information and decision making strategies on professional and ethical issues associated with service delivery, research, and teaching.

### PSYC 592 Individual Research  1 to 3 Credit Hours
No more than 6 hours may be counted for concentration. Arrangements will be made for adequately prepared students to undertake individual research under the direction of a member of the staff. The students, in electing, should indicate the staff member with whom the work has been arranged. Additional reading assignments or projects will distinguish this course from its undergraduate version PSYC 492. Students cannot receive credit for both PSYC 492 and PSYC 592. (YR).

**Restriction(s):**
- Can enroll if Class is Graduate

### PSYC 593 Ethical Issues  3 Credit Hours
Provides graduate psychology students with current information and decision making strategies on professional and ethical issues associated with service delivery, research, and teaching. (F,YR)

**Restriction(s):**
- Can enroll if Class is Graduate

### PSYC 597 Health Psych Thesis Research  3 to 6 Credit Hours
Students electing the thesis option in the last stage of the Master of Science in Health Psychology program will work under the general supervision of a member of the graduate faculty in the Behavioral Sciences Department but will plan and carry out the work independently. A prospectus for the thesis must be approved by the Master of Science in Health Psychology program director before the student registers for the course. The student will submit a report on the thesis and give an oral presentation to a panel of faculty members when the thesis is completed. (YR)

**Restriction(s):**
- Can enroll if Class is Graduate

### PSYC 698 Pract. Clinical Health Psyc  3 to 6 Credit Hours
The Practicum in Clinical Health Psychology offers students supervised clinical experience in a variety of clinical health and human service settings. The practicum is designed for students in the MS in Clinical Health Psychology program who have completed all coursework related to clinical diagnoses, assessment and therapy. Written permission of instructor or Program Director required.

**Prerequisite(s):** PSYC 545 and PSYC 547 and PSYC 548 and PSYC 549 and PSYC 565 and PSYC 593

**Restriction(s):**
- Can enroll if Program is MS-Psychology

* An asterisk denotes that a course may be taken concurrently.

**Frequency of Offering**

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

### Public Administration (PADM)

#### PADM 500 Topics in Public Admin  1 to 3 Credit Hours
A major topic or set of related topics in public administration will be examined in the course. For example, the topic one semester might be the "Classics of Public Administration." The topics may change and, therefore, it is possible to take the course more than once.

**Restriction(s):**
- Can enroll if Class is Graduate
PADM 505 Intro to Pub & Non-Prof Admin 3 Credit Hours
This introductory course provides an overview of topics encountered in government or nonprofit administrator positions. Topics emphasized in the seminar include decision-making, finance, human resources, leadership, performance, accountability, organizational responsiveness, and strategic management.
Restriction(s):
Can enroll if Class is Graduate

PADM 507 Strategic Comm for Admin 3 Credit Hours
This Internet course addresses three levels of administrative communications - individual, group and organization - and examines the concepts and skills needed to be an effective communicator. Students will develop applications emphasizing goal-oriented communications and making strategic choices in content, structure, style and delivery. An emphasis is given to the design and best use of computer technologies such as Word and PowerPoint applications. The course also covers basic ethical and legal issues of workplace communications.
Restriction(s):
Can enroll if Class is Graduate

PADM 520 Leadership and Administration 3 Credit Hours
An overview and examination of the background and current practices and applications associated with substantive leadership and futures-oriented management of a variety of public service and nonprofit organizations.
Restriction(s):
Can enroll if Class is Graduate

PADM 522 Qltty and Prod in Serv Org 2 Credit Hours
Contemporary service organizations are concerned with improving their quality and productivity. What are the different approaches to accomplishing these ends? Subjects such as Total Quality Management and other approaches will be examined and utilized to suggest techniques to improve educational, public, and nonprofit organizations.
Restriction(s):
Can enroll if Class is Graduate

PADM 523 Administrative Law 3 Credit Hours
This class will focus on important legal and regulatory issues as they relate to public, education, and nonprofit organizations. It will consider the various court and administrative decisions which affect these. Numerous case situations will be used to facilitate the students’ learning.
Restriction(s):
Can enroll if Class is Graduate

PADM 525 Consulting and Staff Dev 3 Credit Hours
This two-pronged program aligns the planning, design, and implementation of pre-service and in-service staff development programs for individuals and groups with an analysis and study of internal and external consultant roles and practices that help ensure proper development of personnel, processes and programs to enhance the organizational mission and desired outcomes.
Restriction(s):
Can enroll if Class is Graduate

PADM 527 PR for Nonprofit/Public Sector 3 Credit Hours
The seminar examines the interaction of bureaucracies and their communities. It is particularly concerned with citizen roles and involvement in governance and communications in education, public and nonprofit organizations. Concepts used include community power, pressure groups and organization culture and climate.
Restriction(s):
Can enroll if Class is Specialist or Graduate

PADM 530 Loc Govt for Teach/Admin 1 to 3 Credit Hours
At the seminar, teachers participate in interactive learning activities with local government staff members. Officials serve as resource people, not lecturers. Teachers experience each lesson through the eyes of their students. All participants provide complete lesson plans for each activity, making it easy to share favorites from the course/academy with colleagues. Teachers work on developing coordinated learning experiences in local government including field trips, case studies and class visitations drawn from both school district and local government resource bases.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

PADM 540 Admin of Financial Resources 3 Credit Hours
Basic principles and actual practices of financial administration and accounting for state/local governments, public school systems and nonprofit organizations. Particularly budgeting and financial reporting within the context of other organizational processes and political demands and/or requirements. As one of the MPA core seminars, the case method will be employed to illustrate issues and problems of financial administration.
Restriction(s):
Can enroll if Class is Graduate

PADM 541 Fund Accounting 3 Credit Hours
This seminar focuses on the goals, methods and issues associated with accounting for funds used in public agencies, school districts and nonprofit organizations. Included in the course is consideration of the preparation and use of financial statements, and Comprehensive Annual Financial Reports. A variety of other related topics will be covered such as managing debt, investments, and cash management practices.
Restriction(s):
Can enroll if Class is Graduate

PADM 548 Fundraising 3 Credit Hours
The course will analyze the role of fundraising and philanthropy for nonprofits. The class will examine issues such as the cultural, political and economic supports and constraints within which nonprofit organizations operate. Students will be able to enhance their fundraising skills and their knowledge of the fundraising practices of nonprofits.
Restriction(s):
Can enroll if Class is Graduate

PADM 560 Admin of Human Resources 3 Credit Hours
This seminar will examine human resource administration activities in public, educational and nonprofit settings. Issues such as recruiting, selection, planning, performance appraisal, contracting and collective bargaining will be related to the overall administrative activities. Emphasis will be placed on the connections between human resource issues in public, education, and nonprofit organizations.
Restriction(s):
Can enroll if Class is Graduate

PADM 561 Organization Dev and Theory 3 Credit Hours
Students will learn how organizations are structured and shaped, know what features of organizations vary and the parameters on which they vary, and be able to analyze, synthesize, and apply concepts to reduce organizational uncertainty, and to improve and regulate organization behaviors and outcomes. Attention will also focus on top down and participatory administration in organizations, and change in public, educational, and nonprofit organizations and agencies.
Restriction(s):
Can enroll if Class is Graduate
PADM 562  Labr Relations in Serv Setting  3 Credit Hours
The seminar will consider the impact of collective bargaining on
traditional human resource administration in public, education and
nonprofit settings. It also will focus on developing an initial competency
in the various activities associated with collective bargained situations.
Restriction(s):
Can enroll if Class is Graduate

PADM 564  Performance Appraisal  3 Credit Hours
Evaluating the performance of individuals in an organization is crucial
to the motivation of the individual and the success of the organization.
This class will consider the available methods for assessing performance
of personnel in different public, educational and nonprofit settings. The
different methodologies and concepts in the field will be utilized in the
class.
Restriction(s):
Can enroll if Class is Graduate

PADM 580  Info Sys and Stats for Admin  3 Credit Hours
This course will introduce MPA students to descriptive and basic
inferential statistics. Participants will use microcomputers and software
to perform elementary statistical analyses and to prepare presentation
quality reports and graphics, making use of statistical information.
Restriction(s):
Can enroll if Class is Graduate

PADM 581  Strat Planning/Needs Assessmnt  3 Credit Hours
This course develops the strategic planning and needs assessment
competencies of the participants. Emphasized in the course is the
"cascade" process of information gathering involving interviewing, focus
groups, and surveys as applied in strategic planning.
Restriction(s):
Can enroll if Class is Graduate

PADM 582  Policy Analysis & Development  3 Credit Hours
Policy formulation involves two different activities: 1) identifying and
assessing alternative courses of action, i.e., deciding what, if anything,
needs to be done about a problem; and 2) developing the policy,
regulation or law that will carry an agreement in principle into effect. Both
aspects of policy development will be covered in the course.
Restriction(s):
Can enroll if Class is Graduate

PADM 583  Program Evaluation  3 Credit Hours
This class will examine procedures for evaluating programs in public,
education and nonprofit settings. The concern will be to examine the
various techniques available to determine whether a program is doing
what it was intended to do. Students will utilize various techniques in
examining a variety of case situations.
Restriction(s):
Can enroll if Class is Graduate

PADM 585  Technology for Administrators  3 Credit Hours
This course will focus on the role of organizational administrators in
the applications of technology within an organization, including policy
development, personnel management, financial planning and budgeting,
program planning and evaluation, training, and strategic planning.
Restriction(s):
Can enroll if Class is Graduate

PADM 586  Ethics in Public Pol & Admin  3 Credit Hours
This course critically examines ethical issues encountered by public
administrators and policymakers. It examines ethical considerations
related to managing people and other organizational resources and
designing and implementing public policy. It seeks to help students
identify, understand, and deal effectively with the ethical dimensions of
leadership in the public and nonprofit sectors. (YR)
Restriction(s):
Can enroll if Level is Rackham or Graduate

PADM 650  Assessment Seminar  1 to 3 Credit Hours
This "capstone" seminar involves the assessment of public
administration degree candidates' knowledge, skills and abilities in core
program areas. These core areas include administration of programs,
finance and human resource administration, and leadership. Students will
prepare and present portfolios of their work.
Restriction(s):
Can enroll if Class is Graduate

PADM 720  Internship  1 to 3 Credit Hours
Students who lack the necessary experience in responsible
administration will be afforded the opportunity to gain the experience
in the internship. The class and the number of hours will be arranged
to fit the needs of the students the program coordinator believes are
necessary.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Major is Public Administration

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter
terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Public Policy (PPOL)

PPOL 500  Economic Theory and Policy  3 Credit Hours
This course provides an intensive and comprehensive introduction to
economics for students entering the Masters in Public Policy program.
Topics covered include a range of microeconomic and macroeconomic
concepts, issues, and techniques with a special focus on the application of
economics to public policy. (YR)
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate
NCFD or Graduate
PPOL 501  Research Methods  3 Credit Hours
All students must begin with Research Methods, a course that provides an overview of the scientific method, methods of ethical analysis, methods of research design, widely used statistical methods, and specific means of social observation such as survey research.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

PPOL 502  Pol Env of Public Policy  3 Credit Hours
This course examines how policy making occurs in our political system: the roles of community leaders, citizens, scientists and experts in the policy process; the stages of policy formulation, agenda setting, legislative action, administration of policy, and judicial oversight of the policy process; and the pros and cons of various ways of making policy, including cost-benefit analysis, democratic deliberation by informed citizens, the interest group process, and legal-judicial activism.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

PPOL 503  Economics and Public Policy  3 Credit Hours
In this course students will review basic neoclassical economic theory and learn to apply it to the analysis of public policy issues. Economics offers important insights into the behavior of businesses, consumers, and government entities. We will review key economic concepts, applying each to an array of public policy questions. Next we'll evaluate resource allocation via the market system and consider how public policy might address situations where the market fails to produce desirable results. Lastly, we'll learn about the basic tools economists use to evaluate public policies.

Prerequisite(s): (ECON 201 and ECON 202) or PPOL 500

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Cannot enroll if College is Engineering and Computer Science

PPOL 504  Rational Choice  3 Credit Hours
Good public policy requires that leaders make sound decisions. A good choice is a rational choice, so the study of rational choice is central to good policy making and to policy studies. This course examines the literature on rational choice, with an emphasis on more practical and applied studies that can aid practitioners who are trying to make rational decisions that will benefit communities. (OC)

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

PPOL 505  Ethics in Public Policy &Admin  3 Credit Hours
This course critically examines ethical issues encountered by public administrators and policymakers. It examines ethical considerations related to managing people and other organizational resources and designing and implementing public policy. It seeks to help students identify, understand, and deal effectively with the ethical dimensions of leadership in the public and nonprofit sectors.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if Level is Graduate or Rackham or Professional Development

PPOL 506  Program Evaluation  3 Credit Hours
Program Evaluation focuses on how particular policies and programs can be evaluated to assess how well they are working and whether they are attaining their goals. A required core MPP course.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

PPOL 507  Cost-Benefit Analysis  3 Credit Hours
The course focuses on the various techniques used in cost-benefit analysis, the strengths and weaknesses of these techniques, and case studies illustrating the practical problems involved in such analyses.

Prerequisite(s): PPOL 503

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if Class is Graduate

PPOL 508  Project Writing  1 Credit Hour
Required only for students not writing a Master's thesis, the course is designed to produce a capstone paper that demonstrates the student's ability to integrate previous policy papers (three) into a final coherent overview of a policy area. This course is required only of students electing the course-only Plan A.

Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if Class is Graduate

PPOL 551  Environmental Econ and Policy  3 Credit Hours
Environmental policy at all levels of government is of increasing importance. This course uses the tools of economics to examine government policy related to pollution, natural resources, and other environmental issues. Topics covered in this course include externalities, common property, public goods, and the optimum use of depletable natural resources. The role of cost-benefit analysis as a part of the decision-making process is also examined.

Prerequisite(s): PPOL 503

Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Can enroll if Level is Professional Development or Rackham or Graduate

PPOL 552  Michigan Econ Environment  3 Credit Hours
This course will provide students with an overview of the Michigan economy by highlighting key issues and challenges facing the regional economy. In addition, students will be instructed in how to locate economic data sources and how to utilize economic data. Current policy debates and proposals will be introduced and evaluated. Topics include the decline of manufacturing employment, income and wealth inequality, education policy and the knowledge/innovation economy, land use policy, and alternative economic policies including social entrepreneurship, third-sector economics, community economy movements and advocacy planning. The economic environment of Ontario will also be explored as a comparative case study.

Restriction(s):
Can enroll if Class is Graduate
PPOL 560  Science, Tech & Pub Policy  3 Credit Hours
This course explores the intersection of science, technology, and public policy. Scientific knowledge and technological innovations are exceptionally powerful resources for policy-makers and for societies; they also pose great challenges and risks. This course will look at how science and technology affect the pursuit of policy goals in areas such as public health, environmental sustainability, economic growth, and national security. Students will not receive credit for more than one of POL 460, POL 560, and PPOL 560.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Can enroll if Level is Graduate or Rackham or Professional Development

PPOL 581  Terrorism & US Intl Security  3 Credit Hours
The United States responded to the events of September 11, 2001 with a series of unprecedented action under the umbrella of homeland security and the War on Terror. This course examines American National security policy by asking a few key questions: What is terrorism and how does it threaten the United States? How has the United States responded to the threat of terrorism over time? What have the consequences of US policy been to date? Finally, how would we balance a desire for security with our desire for civil liberties and ethical action?
Restriction(s):
Can enroll if Level is Rackham or Graduate

PPOL 587  Comparative Enviro Policy  3 Credit Hours
This course explores environmental policy as a result of political processes involving diverse participants and entailing movement through several stages—from defining an issue as an environmental problem to placing it on political agenda and then receiving a response at domestic governmental or international levels. This course analyzes environmental issues from a cross-cultural and comparative perspective, with a particular attention given to political institutions, political change, levels of development, political culture, public participation, and international commitments that shape the nature and dynamics of environmental politics and policy in different countries. Additional reading assignments or projects will distinguish this course from its undergraduate version.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

PPOL 560  Science, Tech & Pub Policy  3 Credit Hours
This course explores the intersection of science, technology, and public policy. Scientific knowledge and technological innovations are exceptionally powerful resources for policy-makers and for societies; they also pose great challenges and risks. This course will look at how science and technology affect the pursuit of policy goals in areas such as public health, environmental sustainability, economic growth, and national security. Students will not receive credit for more than one of POL 460, POL 560, and PPOL 560.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate
Can enroll if Level is Graduate or Rackham or Professional Development

PPOL 680  Internship  1 to 6 Credit Hours
Students who desire practical experience in the area of public policy will be afforded the opportunity to gain the experience in the internship. The class and the number of hours will be arranged to fit the needs of the students, subject to approval by the program coordinator.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

PPOL 690  Topics in Public Policy  3 Credit Hours
Public policy topics of current interest. Topics vary from term to term.
Restriction(s):
Can enroll if Class is Post-baccalaureate NCFD or Post-baccalaureate Cert only or Graduate

PPOL 698  Directed Study in Pub Pol  1 to 3 Credit Hours
This course will permit students to take subjects not currently offered in regular courses but within the capacity of existing faculty. To be elected only with the permission of the program director and an instructor.
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate
Can enroll if Level is Professional Development or Rackham or Graduate

PPOL 699  Master's Thesis  1 to 6 Credit Hours
MPP students electing the thesis option in the last stage of the program will work under the general supervision of a member of the graduate faculty in CAS&L, but will plan and carry out the work independently. The MPP Program Director must approve a prospectus of the thesis before the student registers for the course. The student will defend the completed thesis before a panel of program faculty.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Religious Studies (RELS)

RELS 501  Religion in Contemp US Culture  3 Credit Hours
The purpose of this course is to provide people in contemporary multi-religious America foundational information about beliefs and practices of several of the world’s religions sufficient to engage in inter-religious dialogue. Special emphasis will be given to changes in the American religious landscape after 1965 with the passage of new immigration laws. The course will combine lectures and visits to a variety of Metropolitan Detroit religious centers including Hindu, Buddhist, Jain, Sikh, Jewish, Christian, Muslim, and Native American. (YR,S).
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Social Sciences (SSCI)

SSCI 585  The Middle East for Teachers  2 Credit Hours
This is an orientation and curriculum development course for teachers who a) include the Middle East in their curriculum or b) have students of Middle Eastern background and would like to know more about the region.
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.
Sociology (SOC)

SOC 503  Minority Groups  3 Credit Hours
The status of racial and ethnic minorities in the United States with particular reference to the social dynamics involved with regard to majority-minority relations. Topics of study include inequality, segregation, pluralism, the nature and causes of prejudice and discrimination and the impact that such patterns have upon American life. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 403. Students cannot receive credit for both SOC 403 and SOC 503. (AY)
Prerequisite(s): SOC 200 or SOC 201

SOC 504  Dissed: Differ, Power, Discrim  3 Credit Hours
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power - social, economic, and political - in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a 'natural order', obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors, and ideologies that maintain discrimination and the unequal distribution of power and resources. Students will not receive credit for both SOC 404 and SOC 504. This course is distinguished from its 400-level counterpart by the requirement of additional assignments, including a required additional paper.
Restriction(s):
Can enroll if Class is Graduate

SOC 505  Sexual Praxis and Theory  3 Credit Hours
This course will offer an overview of sexual differences including: the socio-cultural construction of gender, sexual behavior, and orientation; sex and sexualities in language and literature; and diversity by race, class, and cultural heritage. (F)
Prerequisite(s): WST 275 or WGST 275 or HUM 275 or ANTH 275 or PSYC 275 or SOC 443 or SOC 275 or PSYC 405 or ANTH 406 or ANTH 101 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303
Restriction(s):
Can enroll if Class is Post-baccalaureate Cert only or Post-baccalaureate NCFD or Graduate

SOC 509  Feminist Theories  3 Credit Hours
This course examines the different perspectives that feminist theorists have offered to analyze the unequal conditions of women's and men's lives. Students taking this course will develop an understanding of how theory functions as a way to know, understand and change the world. They will also be provided with a lens for comparing the assumptions and implications of alternative theoretical perspectives. A particular emphasis of this course is on theorizing the interrelationships among gender, race, class, sexuality and nationality. Course material includes applications of feminist theory to issues such as gender identity formation; sexuality; gender, law and citizenship; women and work; and the history and politics of social movements. Students will not receive credit for both SOC 409 and SOC 509. Additional reading assignments or projects will distinguish this course from its undergraduate version.
Prerequisite(s): LIBS 560

SOC 510  Quantitative Research  4 Credit Hours
An introduction to methods of data collection and analysis. Also a discussion of research design and the philosophy of social sciences. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 410. Students cannot receive credit for both SOC 410 and SOC 510. (F,W,S)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 511  Program Evaluation  3 Credit Hours
The application of social research procedures in assessing whether a human service program is needed, likely to be used, conducted as planned and actually helps people in need. The course will cover research and measurement as well as issues of how to get research findings utilized. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 411. Students cannot receive credit for both SOC 411 and SOC 511. (YR)
Prerequisite(s): SOC 200 or SOC 201 or PSYC 170 or PSYC 171 or POL 101 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

SOC 522  Structure of American Society  3 Credit Hours
An analysis of the institutional structure of American society, with a view of determining the degree of its integration. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 422. Students cannot receive credit for both SOC 422 and SOC 522. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 523  American Social Classes  3 Credit Hours
Stratification of American communities and society; a review of the findings of major studies and an introduction to methodology. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 423. Students cannot receive credit for both SOC 423 and SOC 523. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate
SOC 526  Society and Aging  3 Credit Hours
Personal, interpersonal, and institutional significance of aging and age categories. Sociological dimension of aging based on social, psychological, and demographic factors. Attention to social networks and institutionalization. Additional assignments or projects will distinguish this course from its undergraduate version SOC 426. Students cannot receive credit for both SOC 426 and SOC 526.  (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 535  Urban Sociology  3 Credit Hours
A descriptive study of the form and development of the urban community with respect to demographic structure, spatial and temporal patterns, and functional organization. The relationship of city and hinterland. Social planning and its problems in the urban community. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 435. Students cannot receive credit for both SOC 435 and SOC 535.  (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 540  Medical Sociology  3 Credit Hours
An analysis of health and illness behavior from the point of view of the consumer, as well as the medical professionals, the structure, strengths, and weaknesses of the medical care delivery system in the U.S.; the impact of culture and personality on illness behavior; and a study of the institution of medicine and activities of health care professionals. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 440. Students cannot receive credit for both SOC 440 and SOC 540.  (F,W,S)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 541  Sociology of the Auto Industry  3 Credit Hours
The American auto industry is examined in its relationship to the economic and political structures of 20th century U.S. This includes a focus on the social history of the industry as well as a discussion of the nature of auto work. Proposals for changing social relations at work are also examined. The course concludes with an examination of the industry on a local community (Detroit). Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 441. Students cannot receive credit for both SOC 441 and SOC 541.  (F,W)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 542  Sociology of Work  3 Credit Hours
The study of work roles in modern society. The impact of industrialization, professionalization, and unionization on the conditions of work, worker motivation and job satisfaction. Career choice processes and career patterns, occupational status and prestige, and occupational associations are among the topics to be considered. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 442. Students cannot receive credit for both SOC 442 and SOC 542.  (YR)
Prerequisite(s): SOC 201 or SOC 200
Restriction(s):
Can enroll if Class is Graduate

SOC 543  Gender Roles  3 Credit Hours
This course will investigate the development of gender roles in childhood and adolescence due to either innate physiological differences or sociological patterning, the effect of gender roles upon male-female relationships within our society, and the possibility of transcending sociological gender roles in alternate modes of living. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 443. Students cannot receive credit for both SOC 443 and SOC 543.  (YR)
Prerequisite(s): PSYC 170 or PSYC 171 or SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 545  The Family  3 Credit Hours
The family is an institution shaped by other aspects of society, as a social system with its own dynamics, and as a primary group affecting the lives of its members. Historical and contemporary materials from the United States and other cultures. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 445. Students cannot receive credit for both SOC 445 and SOC 545.  (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 546  Marriage and Family Problems  3 Credit Hours
A sociological analysis of problems encountered within the institution of marriage with particular reference to such issues as choosing a marriage partner, sexual adjustment, occupational involvement, conflict resolution, child rearing, divorce and readjustment. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 446. Students cannot receive credit for both SOC 446 and SOC 546.  (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 547  Family Violence  3 Credit Hours
Sociological analyses of various forms of family violence which occur disproportionately in the lives of girls and women. Topics such as incest, sexual abuse, date rape, wife battering, and elder abuse will be situated within the social and cultural context of contemporary gender relations. Social and political responses to the phenomena will be examined. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 447. Students cannot receive credit for both SOC 447 and SOC 547.  (YR)
Prerequisite(s): SOC 200 or SOC 201 or SOC 301 or SOC 443 or PSYC 405 or WST 405 or PSYC 505 or WST 505 or SOC 543
Restriction(s):
Can enroll if Class is Graduate

SOC 548  Comparative Health Care System  3 Credit Hours
An introduction and overview of the English, Swedish, and People's Republic of China health care systems. Focus on cultural and other organizational characteristics, unique features, approaches and ability to solve problems. Emphasis on how the three systems help us understand the American health care system. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 448. Students cannot receive credit for both SOC 448 and SOC 548.  (F,W,S)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate
SOC 550  Political Sociology  3 Credit Hours
Examines how society affects the distribution and exercise of power through analyzing linkages between power, participation, and perspectives. Studies of political participation and social organization, ideology, and social conflict, as well as political socialization, represent some of the major parameters. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 450. Students cannot receive credit for both SOC 450 and SOC 550. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 552  Sociology of Law  3 Credit Hours
Various aspects of the relationship between law and society are explored. After a look at processes of law-making, attention is turned to the administration of law. This involves a study of the activities of legislatures, courts, police and correctional agents. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 452. Students cannot receive credit for both SOC 452 and SOC 552. (YR)
Prerequisite(s): SOC 200 or SOC 201 or PSYC 101
Restriction(s):
Can enroll if Class is Graduate

SOC 553  Sociology of Religion  3 Credit Hours
Religion as a social institution; its purposes, methods, structures, and beliefs, and its relation to other institutions. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 453. Students cannot receive credit for both SOC 453 and SOC 553. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 554  Mental Health and the Law  3 Credit Hours
Courts and legislatures now control much of the work of mental health professionals such as social workers, counselors, therapists, and psychologists. This course looks at problems encountered in putting laws and policies into effect. These implementation problems are much the same in other areas of government action, such as poverty programs and pollution control. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 454. Students cannot receive credit for both SOC 454 and SOC 554. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 555  Sociology of Education  3 Credit Hours
Education as a social institution; its purpose, methods, structure, and philosophy, and its relation to other institutions, particularly in the urban setting. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 458. Students cannot receive credit for both SOC 458 and SOC 558. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 556  Juvenile Delinquency  3 Credit Hours
The analysis of juvenile delinquent behavior in relationship to the institutional framework of society. Emphasis on the extent, causes, and methods of treatment of juvenile delinquency in the United States. Additional reading assignments or projects will distinguish this course from its undergraduate version, SOC 469. Students cannot receive credit for both SOC 469 and SOC 569. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate
SOC 579  Comparative Hlth Systems:Trip  3 Credit Hours
A unique combination of lectures, field trips, visits with general practitioners, specialists, hospital observations, talks with health policy planners, researchers, and many others. Personal experience in two health care systems. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 479. Students cannot receive credit for both SOC 479 and SOC 579. (AY)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 581  Gender and Globalization  3 Credit Hours
Mass media, politics, and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women's lives, gender relations, and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism, and environmental challenges. Rather than survey international women's movements, this course explores how globalization reformulates identities and locations and the political possibilities they create. Students cannot receive credit for both SOC 481 and SOC 581. (AY).
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Arts, Sciences, and Letters

SOC 583  Images of Organizations  3 Credit Hours
Formal bureaucratic organizations such as government agencies, hospitals, and colleges are distinctive features of modern industrialized societies. Analysis of types of formal organizations, their goals, structure, and consequences for intra- and inter-organizational behavior helps to understand how to deal with a complex world. Additional reading assignments or projects will distinguish this course from its undergraduate version SOC 483. Students cannot receive credit for both SOC 483 and SOC 583. (YR)
Prerequisite(s): SOC 200 or SOC 201
Restriction(s):
Can enroll if Class is Graduate

SOC 590  Advanced Topics in Sociology  3 Credit Hours
A seminar in which selected topics pertaining to sociology are studied in depth. (YR).
Restriction(s):
Can enroll if Class is Graduate

SOC 598  Independent Study  1 to 6 Credit Hours
Analytical assignments in sociology.
Restriction(s):
Can enroll if Class is Graduate
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Spanish (SPAN)
SPAN 521  Advanced Translation  3 Credit Hours
The course will continue to apply the translation theory and techniques introduced in Spanish 420, and it will continue to focus on English-to-Spanish and Spanish-to-English non-literary translation. Emphasis will be placed on materials selected from the fields of business, advertising, and legal discourse. Class projects will include translation of advertisements, legal documents, and business brochures. (AY,W).
Prerequisite(s): SPAN 303 and SPAN 420
Restriction(s):
Can enroll if Class is Graduate
Cannot enroll if Level is Undergraduate
* An asterisk denotes that a course may be taken concurrently.

Speech (SPEE)
SPEE 530  Small Group Communications  3 Credit Hours
A survey of small group behavior from the perspectives of theory, research, and practice. Activities and discussion will emphasize skills in leadership, problem solving, policy making, and the development of consensus. (F,W,S)
Prerequisite(s): SPEE 101
Restriction(s):
Can enroll if Class is Graduate
* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
Statistics (STAT)

STAT 530  Applied Regression Analysis  3 Credit Hours
Topics include single variable linear regression, multiple linear regression and polynomial regression. Model checking techniques based on analysis of residuals will be emphasized. Remedies to model inadequacies such as transformation will be covered. Basic time series analysis and forecasting using moving averages and autoregressive models with prediction errors are covered. Additional assignments in logistic regression and forecasting will distinguish this course from its undergraduate version, STAT 430. Statistical packages will be used. Students cannot receive credit for both STAT 430 and STAT 530.
Prerequisite(s): STAT 425 or STAT 326
Restriction(s):
Can enroll if Level is Graduate or Rackham

STAT 535  Data Analysis and Modeling  3 Credit Hours
Linear models including models with factors associated with both fixed and random effects together with covariates. Models containing more complex covariance structure including repeated measures and time dependence. The statistical processing package SAS will be used extensively to analyze data associated with such models. The SAS procedures Proc GLM, Proc REG, and Proc Mixed will be used extensively in examples, assignments, and projects. (OC).
Restriction(s):
Can enroll if Class is Graduate

STAT 545  Reliability & Survival Analysis  3 Credit Hours
Parametric and nonparametric modeling of reliability data from industrial experiments and survival data from biological experiments where the data may be censored. This includes models where covariates are present and where the data may be from the Weibull, log-normal, or the gamma distribution and also the nonparametric proportional hazards model and Cox regression. The statistical processing package SAS will be used extensively to analyze data associated with such models. The SAS procedures Proc LIFEREG will be used to analyze parametric regression models and the procedure Proc LIFETEST will be used to analyze nonparametric regression models in examples, assignments, and projects. (OC).
Restriction(s):
Can enroll if Class is Graduate

STAT 550  Multivariate Stat Analysis  3 Credit Hours
An introduction to commonly encountered statistical and multivariate techniques, while assuming only a limited knowledge of higher-level mathematics. Topics include: multivariate analysis of variance, multivariate regression, principal components and factor analysis, canonical correlation, and discriminant analysis.
Prerequisite(s): STAT 530

STAT 555  Environmental Statistics  3 Credit Hours
A wide variety of statistical tests important in environmental sciences will be covered through the use of case studies. Theory and applications of datasets, data displays, and formal statistical inference will be discussed. Students will obtain direct experience with the study and analysis of data, do projects, and write reports. (W, AY)
Restriction(s):
Can enroll if Class is Graduate

STAT 560  Time Series Analysis  3 Credit Hours
An Introduction to time series, including trend effects and seasonality, while assuming only a limited knowledge of higher-level mathematics. Topics include: linear Gaussian processes, stationarity, autocovariance and autocorrelation; autoregressive (AR), moving average (MA) and mixed (ARMA) models for stationary processes; likelihood in a simple case such as AR(1); ARIMA processes, differencing, seasonal ARIMA as models for non-stationary processes; the role of sample autocorrelation, partial autocorrelation and correlograms in model choice; inference for model parameters; forecasting: dynamic linear models and the Kalman filter.
Prerequisite(s): STAT 530

STAT 590  Topics in Applied Statistics  3 Credit Hours
A course designed to offer selected topics in applied statistics. The specific topic will be announced together with the prerequisites when offered. Course may be repeated for credit when specific topic differs.
(OC)
Restriction(s):
Can enroll if Level is Rackham or Graduate

STAT 597  Ind Studies in Statistics  1 to 3 Credit Hours
Independent Study in statistics for topics at the graduate level. Topics and objectives chosen by agreement between students and instructor.

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering:
(F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

Tax (TAX)

TAX 501  Tax Acct Rules & Timing Iss  3 Credit Hours
Course examines in detail the cash and accrual accounting rules for income tax purposes, including inventory accounting, and the uniform capitalization rules. Time value of money principles and imputed interest matters are examined in connection with the original issue discount rules.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

TAX 502  Inc Taxation of Prop Trans I  3 Credit Hours
This course will survey several fundamental areas relating to the income taxation of property transactions. Topics will include noncash receipts and payments, introduction to basis, realization and recognition concepts, transactional losses including bad debt expense, limitations on transactional loss deductions cost recovery procedures, the general effect of debt on basis and amount realized calculations, and characterization issues. The planning and business aspects of these topics are emphasized.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate
TAX 510  Fundamentals of Corporate Tax  3 Credit Hours
This course analyzes federal income tax rules relating to the definition, formation, operation, and liquidation of corporations including property distributions, stock redemptions, and tax/book income reconciliations. The planning and business aspects of these corporate items are emphasized. Students may not receive credit for both ACC 633 and TAX 510.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

TAX 603 Inc Taxation of Prop Trans II  3 Credit Hours
This course will survey several advanced areas relating to the income taxation of property transactions. Topics will include, like kind exchanges, involuntary conversions, effect of nonrecourse debt on basis an amount realized calculations and on various leveraged tax shelter transactions, the passive activity loss limitations, the at-risk rules, the economic substance doctrine, leasing transactions and installment sales. The planning and business aspects of these topics are emphasized.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

TAX 611 Adv Corp Inc Tax  3 Credit Hours
This course analyzes federal income tax rules relating to corporations, including taxable acquisitions; tax free acquisitive, divisive, and bankruptcy reorganizations; corporate recapitalizations; and transfers of corporate attributes, including limitations on such transfers. The planning and business aspects of these corporate items are emphasized.
Prerequisite(s): ACC 633 or TAX 510
Restriction(s):
Can enroll if Class is Graduate

TAX 615 Flow Through Entities  3 Credit Hours
A study of advanced income tax problems involving partnerships and S-Corporations, including organization, operation, distributions, liquidations, basis, family partnerships, and sales and exchanges. The planning and business aspects of partnerships and S-Corporations are emphasized.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

TAX 622 Estate and Gift Taxation  3 Credit Hours
This course covers the basics of estate, trust taxation and tax issues encountered by small businesses. Topics include tax planning techniques to minimize the tax-burden on intergeneration transfers of wealth, tax planning for the closely held business, capital formation and preservation, tax compliance and tax alternatives.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

TAX 627 International Income Taxation  3 Credit Hours
Course examines in a survey fashion the taxation of business and investment transactions by foreigners in the U.S. (in-bound transactions) and business and investment transactions by U.S individuals and corporations in foreign countries (out-bound transactions). Topics include residence, source of income and deductions, taxation of foreign persons on U.S. source passive investment income and U.S. source business income, including income from U.S. branches of foreign corporations, and the effect U.S. tax treaties have on these matters. The course also includes a survey analysis of the foreign tax credit, the anti-tax deferral rules of Subpart F, and the intercompany transfer pricing rules. The planning and business aspects of these international transactions are emphasized.
Prerequisite(s): TAX 510
Restriction(s):
Can enroll if Class is Graduate

TAX 630 State and Local Taxation  3 Credit Hours
This course studies the basics of state and local taxation and their relationship to the federal tax structure. Topics include state/local income, property, and sales taxation structures.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

TAX 680 Special Topics in Taxation  1 to 6 Credit Hours
This course provides Master of Science in accounting students an opportunity for study of advanced and/or emerging issues in taxation. Selected topics in the course may include: Consolidated Tax Returns, Transfer Pricing, Accounting for Income Taxes, Deferred Compensation, Income Taxation of Trusts and Estates, Exempt Organizations, and Tax Procedure and Compliance.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate
Can enroll if Level is Graduate or Rackham

TAX 680A Special Topics in Taxation  3 Credit Hours
Topic: Laws for Tax-Exempt Organizations. This course will survey the law of tax-exempt organizations, with primary emphasis on federal tax law, and secondary emphasis on state laws related to the formation and governance of non-profit organizations. The focus is on 501(c)(3) organizations, including both public charities and private foundations and the differences between them. Topics will include initial application for exempt status; annual filings and disclosure rules; restrictions on private benefit and private inurement; treatment of unrelated business income; and an overview of the federal tax treatment of charitable contributions to 501(c)(3) organizations.
Prerequisite(s): ACC 360
Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally
**Women's and Gender Studies (WGST)**

**WGST 501  Images of Women in Germany  3 Credit Hours**
This course will focus on the position of women in Germany after WWII and up to and after the unification of East and West Germany. Particular attention will be given to the gendered history of working through the National Socialist past, the division and reconstruction of the two nation-states, and the terrorism in West Germany in the 1970's. Students will examine images of women in films and tie them to the ideologies of gender and status of women in these larger issues of German history. Course readings will be in English. This course will be distinguished from its undergraduate counterpart, WGST 401, by the inclusion of additional readings and assignments.

**Restriction(s):**
Can enroll if Class is Graduate

**Prerequisite(s):**
WGST 406. Students cannot receive credit for both WGST 406 and WGST 501.

**WGST 504  Dissed: Differ, Power, Discrim  3 Credit Hours**
Have you ever been dissed? Why are some people targets of disrespect? This class examines the unequal distribution of power-social, economic and political in the United States and other countries that results in favor for privileged groups. We will examine a variety of institutional practices and individual beliefs that contribute to disrespect. We'll look at ways that beliefs and practices, like viewing inequality as consequence of a "natural order," obscure the processes that create and sustain social discrimination. We will engage in the intellectual examination of systems, behaviors and ideologies that maintain discrimination and the unequal distribution of power and resources. Student will not receive credit for both WGST 404 and WGST 504. This course is distinguished from its 400-level counterpart by the requirement of additional assignments, including a required additional paper.

**Restriction(s):**
Can enroll if Class is Graduate

**Prerequisite(s):**
WGST 404 and WGST 504.

**WGST 505  Gender Roles  3 Credit Hours**
This course will investigate the development of sex roles in childhood and adolescence due to either innate physiological differences of sociological patterning, the effect of sex roles upon male-female relationships within our society and the possibility of transcending sociological sex roles in alternate modes of living. Additional reading assignments or projects will distinguish this course from its undergraduate version WGST 405. Students cannot receive credit for both WGST 405 and WGST 505.

**Prerequisite(s):**
PSYC 170 or PSYC 171 or SOC 200 or SOC 201 or PSYC 101

**WGST 506  Culture and Sexuality  3 Credit Hours**
The study of women, men, children, socialization practices and the genesis of sex roles cross-culturally. Additional reading assignments or projects will distinguish this course from its undergraduate version WGST 406. Students cannot receive credit for both WGST 406 and WGST 506.

**Prerequisite(s):**
ANTH 101

**Restriction(s):**
Can enroll if Class is Graduate

**WGST 507  Sexual Praxis and Theory  3 Credit Hours**
This course will offer an overview of sexual differences including: the socio-cultural construction of gender, sexual behavior and orientation; sex and sexualities in language and literature; and diversity by race, class and cultural heritage. These topics will enable students to understand human sexuality within and across a continuum removing notions of duality or polarity, in sexual behaviors and orientations. Examples both from within Western society and from non-Western societies may be used to further this position. Theoretical perspectives may encompass sociological and anthropological work, literary theory and criticism, queer theory, and multi-disciplinary discussions/discourse. Texts may include: Sex and the Machine: Readings in Culture, Gender and Technology, The Anatomy of Love, The Lesbian and Gay Studies Reader, Second Skins, The Body of Narratives of Transsexuality, and Lesbian and Gay Marriage.

**Prerequisite(s):**
WGST 503 or PSYC 303 or ANTH 303 or SOC 303 or HUM 303 or WGST 275 or WST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or SOC 403 or SOC 443 or PSYC 405 or ANTH 406 or ANTH 101

**WGST 508  Gender, Pwr & Intl Development  3 Credit Hours**
This course provides an overview of gender issues in development in the global South, including the differential effects of development policies on women and men, and the role of social movements in transforming development policy frameworks. Students may not receive credit for both WGST 408 and 508. Additional assignments will distinguish this course from its undergraduate counterpart (WGST 408).

**Restriction(s):**
Can enroll if Class is Graduate

**WGST 509  Feminist Theories  3 Credit Hours**
This course examines the different perspectives that feminist theorists have offered to analyze the unequal conditions of women's and men's lives. Students taking this course will develop an understanding of how theory functions as a way to know, understand and change the world. They will also be provided with a lens for comparing the assumptions and implications of alternative theoretical perspectives. A particular emphasis of this course is on theorizing the interrelationships among gender, race, class, sexuality and nationality. Course material includes applications of feminist theory to issues such as gender identity formation; sexuality; gender, law and citizenship; women and work; and the history and politics of social movements. Students will not receive credit for both WGST 409 and WGST 509. Additional reading assignments or projects will distinguish this course from its undergraduate version.

**Prerequisite(s):**
LIBS 560

**WGST 516  Earl Mod Jpn Paint&Wood Prnts  3 Credit Hours**
Painting and woodblock prints of the Edo/Tokugawa (1600-1868) and Meiji II (1868-1912) periods are considered in light of competing developments that on the one hand looked to Japan's classical tradition and on the other to the influence of arts and artists from China and the West. Special attention is given to female artists and images of women.

**Prerequisite(s):**
ARTH 101 or ARTH 102 or ARTH 103

**Restriction(s):**
Can enroll if Class is Graduate
WGST 520  Kinship and Marriage  3 Credit Hours
A study of the diversity of kinship and marriage systems, and of the history of kinship theory which has played a seminal role in the development of general anthropological history. Additional reading assignments or projects will distinguish this course from its undergraduate version WGST 420. Students cannot receive credit for both WGST 420 and WGST 520.
Prerequisite(s): ANTH 101 or ANTH 201
Restriction(s):
Cannot enroll if Class is Graduate

WGST 525  Women in Classical Antiquity  3 Credit Hours
This course examines the evidence for the lives of women in Greek, Etruscan and Roman Antiquity, from the Bronze Age through the Imperial Period. Special emphasis will be placed on the archaeological evidence, especially works of art which illustrate women's lives and their relationships with men. Documents such as dedicatory and funerary inscriptions, the poetry of Sappho and Sulpicia, and selections from the writings of Homer, Hesiod, Aristotle, Pliny, Juvenal, and other ancient authors, will also be examined critically, particularly in relationship to the works of art.
Prerequisite(s): ARTH 101

WGST 533  Writing Women in Renaissance  3 Credit Hours
This course will be taught in English, and will focus on the influence of Italian literary models for the construction of female literary types as well as female voices in France and Italy from 1300 to about 1600. Italian authors studied include three very influential Florentines, Dante, Petrarch and Boccaccio, as well as Castiglione and Ariosto. We will read women poets, patrons, prostitutes and queens from Italy and France such as Veronica Gambara, Isabella di Morra, Vittoria Colonna, Christine de Pizan, Louise Labe and Marguerite de Navarre. At issue will be women's roles and women's images in city and court culture during the early modern period and the interaction of their writings with the literary canons of Italy and France.
Restriction(s):
Can enroll if Class is Graduate

WGST 535  20C/21C Women Authors  3 Credit Hours
An analysis of images and problems of women as defined by significant British and American women writers of the 20th and 21st centuries. Style and narrative techniques will also be closely examined. Students cannot receive credit for both WGST 445 and WGST 545.
Prerequisite(s): (COMP 106 or CPAS with a score of 40 or COMP 220 or COMP 280 or COMP 270) and (ENGL 230 or ENGL 231 or ENGL 233 or ENGL 235 or ENGL 236 or ENGL 237 or ENGL 239 or ENGL 200)
Restriction(s):
Can enroll if Class is Graduate

WGST 546  Marriage and Family Problems  3 Credit Hours
Sociological analysis of problems encountered within the institution of marriage with particular reference to such issues as choosing a marriage partner, sexual adjustment, occupational involvement, conflict resolution, child rearing, divorce and readjustment. Students cannot receive credit for both WGST 446 and WGST 546. Additional reading assignments or projects will distinguish this course from its undergraduate version.
Prerequisite(s): SOC 200 or SOC 201 or WGST 275 or WST 275 or PSYC 275 or SOC 275 or ANTH 275 or HUM 275 or WGST 303 or PSYC 303 or SOC 303 or ANTH 303 or HUM 303

WGST 547  Family Violence  3 Credit Hours
Sociological analyses of various forms of family violence which occur disproportionately in the lives of girls and women. Topics such as incest, sexual abuse, date rape, wife battering and elder abuse will be situated within the social and cultural context of contemporary gender relationships. Social and political responses to the phenomena will be examined. Additional reading assignments or projects will distinguish this course from its undergraduate version WGST 447. Students cannot receive credit for both WGST 447 and WGST 547.
Prerequisite(s): SOC 200 or SOC 201 or SOC 301 or SOC 443 or PSYC 405 or WGST 405
Restriction(s):
Can enroll if Class is Graduate

WGST 550  Feminism & Mod. Mid. East  3 Credit Hours
This course provides an analysis of the history, historiography, and sources for the study of feminism in the Middle East since 1800. Additional assignments will distinguish the graduate version of this course from the undergraduate version.
Restriction(s):
Can enroll if Class is Graduate

WGST 553  Gender and Media Studies  3 Credit Hours
The course will focus on several feminist approaches used in understanding the media and attempting to create social change through the media. The role of media in the definition and reproduction of gender-based hierarchies and in the renegotiation of gender boundaries will both be explored. To this end, both mainstream and women's media will be examined. The course will take a multicultural and international perspective, incorporating concerns of class, race, ethnicity and nation as these intersect with the study of gender and media. Mainstream and alternative media will be analyzed through readings, films, case studies, in-class collaborative exercises and longer term projects. News, entertainment and advertising genres will be examined in a variety of media such as the printed press, television, video film and the Internet.
Prerequisite(s): WGST 275 or WGST 303
Restriction(s):
Can enroll if Class is Graduate

WGST 555  Immigrant Cultures and Gender  3 Credit Hours
The history and culture of immigration since 1850, including: (1) formation and perseverance of immigrant communities and interethnic boundaries; (2) relations between the homeland and the immigrant; and (3) impact of migration on family life and gender roles. Prerequisite and junior or senior standing. Students may not receive credit for both WGST 4555 and WGST 5555. For graduate credit take WGST 5555. This course is distinguished from its 400-level counterpart by the requirement of additional assignments.
Prerequisite(s): ANTH 201 or WGST 275 or WST 275 or PSYC 275 or SOC 275 or SOC 301 or SOC 443 or PSYC 405 or WGST 405
Restriction(s):
Can enroll if Class is Graduate

WGST 556  Sem in US Women's History  3 Credit Hours
Seminar on the historiography and key primary sources related to U.S. Women's History. The course covers examples of classic texts in the field as well as significant new works of scholarship, with an emphasis on critical reading, analysis, and historiography of the field. Students gain a deeper understanding of the field, its guiding concepts, foundational texts, newest trajectories, and impact on the field of history as a whole. The graduate version of this course includes weightier readings and assignments.
Restriction(s):
Can enroll if Class is Graduate
WGST 571  Sexual Subcultures in Lit  3 Credit Hours
This course surveys primarily contemporary literature by writers who identify as gay, lesbian, bi-sexual, transgender, or queer. By studying the self-representation and culturally unique perspective of this emerging canon of writers, students in this course understand the emergence of LGBTQ literary traditions and understand the cultural diversity within these traditions. Students learn to identify the aesthetic qualities (such as camp, performativity, coded subtexts, homoeroticism, and the relationship between creativity and sexuality), and historical, political, and social concerns that characterize LGBTQ literary and cultural production. Topics covered include the struggle for civil rights before and after Stonewall, coming out narratives, the negotiation of homophobic cultures, post-colonial writers, and memoirs of the LGBTQ experience, as well as the historical emergence of sexual categories and the literary critique of heteronormativity. This course counts toward the English discipline diversity requirement.

Restriction(s):
Can enroll if Class is Graduate

WGST 573  Arab American Women Writers  3 Credit Hours
Examines the literary and cultural contributions of Arab and Arab American women novelists, poets, and artists to the development and consolidation of the cultures of understanding and coexistence; explores the tensions between citizenship and belonging, race and the politics of fear, gender and geographical mobility, and ethnic minorities and mainstream consciousness; discerns how Arab women writers and artists retool their various artistic endeavors to channel socio-political disenchantment, critique and civil disobedience; stresses how literary and artistic productions of heterogeneous number of Arab American women writers and artists can indeed foster alternative visions of socio-cultural coexistence, dialogue, and hospitality via artistic commitments to technical and stylistic experimentation and renovation. Additional reading assignments or projects will distinguish this course from its undergraduate version WGST 473. Students cannot receive credit for both WGST 473 and WGST 573.

WGST 581  Gender and Globalization  3 Credit Hours
Mass media, politics and academia are full of references to globalization, and a future "world without borders." This interdisciplinary course considers the implication of globalization for women's lives, gender relations and feminism. Topics covered include the global factory, cross-cultural consumption, human rights, global communications, economic restructuring, nationalism and environmental challenges. Rather than survey international women's movements, this course explores how globalization reformulates identities and locations and the political possibilities they create. Students cannot receive credit for both WGST 481 and WGST 581.

Restriction(s):
Can enroll if Class is Graduate

WGST 590  Topics in Women's Studies  3 Credit Hours
Examination of problems and issues related to Women and Gender Studies. Title as listed in Schedule of Classes will change according to specific content.

Prerequisite(s): WGST 275 or WST 275 or LIBS 580 or WGST 303

Restriction(s):
Can enroll if Class is Graduate

WGST 599  Independent Studies  1 to 3 Credit Hours
Provides opportunity for qualified Women and Gender Studies students to pursue independent research under the direction of a qualified faculty member. Project must be defined in advance, in writing and must be in a subject not currently offered in the regular curriculum.

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering
The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally

An asterisk denotes that a course may be taken concurrently.
INDEX

A
Academic Calendar ................................................................. 9
Academic Code of Conduct ................................................... 54
Academic Code of Conduct .................................................. 472
Academic Standing .............................................................. 53
Academic Standing .............................................................. 472
Accounting ................................................................. 494
Accounting (ACC) .......................................................... 259
Accounting (ACC) ........................................................... 569
Accreditation ................................................................. 15
Addiction Studies Certificate ............................................... 173
Additional Program Recognition ........................................... 53
Admission to the Honors Program ......................................... 28
Admissions & Orientation .................................................... 23
Admissions Committees ......................................................... 34
African & African-American Studies (AAAS) ......................... 261
African & African-American Studies (AAAS) ......................... 572
African and African American Studies ................................... 73
Alcohol and Drug Prevention Policy ...................................... 472
Alcohol and Drug Prevention Program Policy ....................... 53
Alcohol at Campus Events .................................................... 53
Alcohol at Campus Events .................................................... 472
Alumni Enrichment Program ............................................... 28
American Studies ............................................................. 75
American Studies (AMST) ................................................... 264
Anthropology ................................................................. 75
Anthropology (ANTH) ......................................................... 265
Anthropology (ANTH) ......................................................... 572
Applied and Computational Mathematics ......................... 478
Applied Art ..................................................................... 78
Applied Music (MAPP) ......................................................... 269
Applied Statistics ............................................................. 76
Arab American Studies ...................................................... 78
Arab American Studies (AAS) .............................................. 270
Arab American Studies (AAS) .............................................. 574
Arabic (ARBC) ............................................................... 271
Arabic Studies ................................................................. 78
Armenian ....................................................................... 78
Art Applied (ART) ............................................................ 272
Art History ..................................................................... 79
Art History (ARTH) ............................................................ 273
Art History (ARTH) ............................................................ 574
Astronomy ...................................................................... 574
Astronomy (ASTR) ............................................................ 278
Athletics and Recreation ..................................................... 53
Athletics and Recreation ..................................................... 472
Attendance ...................................................................... 53
Attendance ...................................................................... 472
Attendance (Instructor-Requested Drops) ...................... 472
Auditing .......................................................................... 41
Auditing .......................................................................... 472
Automotive Engineering (AENG) ........................................ 575
Automotive Materials and Design ...................................... 544
Automotive Noise, Vibration and Harshness ....................... 545
Automotive Powertrains .................................................... 545
Automotive Systems Engineering ....................................... 545
Automotive Systems Engineering (ASE) ......................... 578
Available Financial Assistance ........................................... 35

B
Behavioral Analysis and Mental Health Certificate ............. 174
Behavioral and Biological Sciences .................................... 83
Behavioral and Biological Sciences (BBS) ......................... 279
Behavioral Sciences ........................................................ 81
Biochemistry .................................................................. 84
Biochemistry (BCHM) ....................................................... 279
Bioengineering ............................................................... 236
Bioengineering ............................................................... 548
Bioengineering (BENG) .................................................... 281
Bioengineering (BENG) .................................................... 578
Biological Science (BIOL) ................................................ 283
Biological Science (BIOL) ................................................ 580
Biological Sciences .......................................................... 85
Bookstore ...................................................................... 53
Bookstore ...................................................................... 472
Business Administration .................................................. 492
Business Administration (BA) .......................................... 288
Business Administration (BA) .......................................... 581
Business Analytics .......................................................... 497
Business Economics (BE) ................................................ 290
Business Economics (BE) ................................................ 581
Business Internship (BI) ................................................... 290
Business Internship (BI) ................................................... 582
Business Policy and Strategy (BPS) ................................. 291
Business Policy and Strategy (BPS) ....................................................... 582
Business Studies as a Secondary Major ................................................. 87
Business Studies as a Secondary Major ................................................. 158

C
Campus Map ....................................................................................... 12
Campus Media Services ..................................................................... 53
Campus Media Services ..................................................................... 472
Campus Services ............................................................................... 53
Campus Services ............................................................................... 472
Campus Visits/Tours ........................................................................... 24
Capsule History of the University of Michigan-Dearborn .................. 13
Change in Course Elections: Add, Drop, Withdrawal ......................... 42
Change in Course Elections: Add, Drop, Withdrawal ......................... 472
Change of Fees and Refunds ................................................................. 42
Change of Fees and Refunds ................................................................. 472
Change of Grades ............................................................................... 44
Chemistry (ACS Certified) ................................................................. 89
Chemistry (CHEM) ............................................................................ 291
Chemistry (CHEM) ............................................................................ 583
Chemistry (Instructional track) ............................................................... 90
Child Life ......................................................................................... 174
Child Life (CLS) ............................................................................... 295
CIS Mathematics ............................................................................... 238
Civic Engagement (CIVE) ................................................................... 296
Class Standing ................................................................................... 43
Clinical Health Psychology ................................................................. 482
Code Conduct for Student Loans ........................................................ 53
Code of Conduct for Student Loans .................................................... 472
College of Arts, Sciences, and Letters ................................................ 54
College of Arts, Sciences, and Letters ................................................ 472
College of Business ........................................................................... 148
College of Business ........................................................................... 485
College of Education, Health, and Human Services ......................... 169
College of Education, Health, and Human Services ......................... 515
College of Engineering & Computer Science .................................... 539
College of Engineering and Computer Science ................................ 226
Communication ............................................................................... 92
Communication (COMM) ................................................................ 296
Communication (COMM) ................................................................ 583
Community Based Education ............................................................... 518
Community Change .......................................................................... 94
Community Health Education ............................................................. 176
Community Health Education (CHE) ............................................... 299

Comparative Literature ....................................................................... 94
Comparative Literature (COML) ......................................................... 299
Comparative Literature (COML) ......................................................... 584
Computer & Computational Math (CCM) ........................................... 301
Computer & Computational Math (CCM) ........................................... 585
Computer & Information Science (CIS) .............................................. 302
Computer & Information Science (CIS) .............................................. 585
Computer and Computational Mathematics .......................................... 94
Computer and Information Science .................................................... 240
Computer Engineering ....................................................................... 239
Computer Engineering ....................................................................... 550
Control Systems ................................................................................ 551
Cooperative Education Program ........................................................ 94
Cost of Attendance ........................................................................... 36
Cost of Attendance ........................................................................... 472
Counseling Services ........................................................................... 53
Counseling Services ........................................................................... 472
Courses A-Z ..................................................................................... 259
Courses A-Z ..................................................................................... 569
Coursework at Other Institutions ......................................................... 53
Credit for Education in the Armed Forces ........................................... 27
Criminal Justice Studies (CRJ) ............................................................ 307
Criminal Justice Studies (CRJ) ............................................................ 591
Criminology and Criminal Justice ....................................................... 95

D
Data Science .................................................................................. 244
Decision Sciences (DS) ....................................................................... 314
Decision Sciences (DS) ....................................................................... 593
Deferring Admission .......................................................................... 31
Degree-Seeking Student ..................................................................... 25
Degrees & Majors Offered .................................................................... 24
Determining Need ............................................................................... 35
Digital Forensics ............................................................................... 246
Digital Marketing ................................................................................ 159
Digital Signal Processing .................................................................... 551
Dual Degree, MBA/MHSA (Student-Initiated) .................................... 513
Dual Degree, MBA/MS, Finance ......................................................... 503
Dual Degree, MBA/MS, Information Systems .................................... 507
Dual Degree, MBA/MS, Supply Chain Management .......................... 508
Dual Degree, MBA/MSE, Industrial and Systems Engineering .......... 510
Dual Degree, MS Accounting/MS Finance (Student-Initiated) .......... 509
Dual Degrees .................................................................................... 53
Dual Degrees .................................................................................... 503
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
<td>472</td>
</tr>
<tr>
<td>General Policies</td>
<td>472</td>
</tr>
<tr>
<td>General Studies</td>
<td>108</td>
</tr>
<tr>
<td>General Studies</td>
<td>192</td>
</tr>
<tr>
<td>Geographic Information Systems</td>
<td>108</td>
</tr>
<tr>
<td>Geography</td>
<td>108</td>
</tr>
<tr>
<td>Geography (GEOG)</td>
<td>367</td>
</tr>
<tr>
<td>Geological Science</td>
<td>108</td>
</tr>
<tr>
<td>Geology</td>
<td>110</td>
</tr>
<tr>
<td>Geology (GEOL)</td>
<td>368</td>
</tr>
<tr>
<td>Geology (GEOL)</td>
<td>640</td>
</tr>
<tr>
<td>German</td>
<td>110</td>
</tr>
<tr>
<td>German (GER)</td>
<td>370</td>
</tr>
<tr>
<td>German (GER)</td>
<td>641</td>
</tr>
<tr>
<td>Global Cultures</td>
<td>110</td>
</tr>
<tr>
<td>Global Cultures (GLOC)</td>
<td>371</td>
</tr>
<tr>
<td>Goals for the Undergraduate Experience</td>
<td>22</td>
</tr>
<tr>
<td>Grade Notations</td>
<td>43</td>
</tr>
<tr>
<td>Grades and Grading</td>
<td>43</td>
</tr>
<tr>
<td>Grades and Grading</td>
<td>472</td>
</tr>
<tr>
<td>Grading Benchmarks</td>
<td>44</td>
</tr>
<tr>
<td>Grading System</td>
<td>43</td>
</tr>
<tr>
<td>Graduate</td>
<td>471</td>
</tr>
<tr>
<td>Graduate STEM Teaching Certificate</td>
<td>532</td>
</tr>
<tr>
<td>Graduation/Application for Diploma</td>
<td>46</td>
</tr>
<tr>
<td>Graduation/Application for Diploma</td>
<td>472</td>
</tr>
<tr>
<td>Greek</td>
<td>112</td>
</tr>
<tr>
<td>Guest Students</td>
<td>29</td>
</tr>
<tr>
<td>H</td>
<td></td>
</tr>
<tr>
<td>Health and Human Service (HHS)</td>
<td>374</td>
</tr>
<tr>
<td>Health and Human Service (HHS)</td>
<td>644</td>
</tr>
<tr>
<td>Health Information Technology</td>
<td>533</td>
</tr>
<tr>
<td>Health Information Technology (HIT)</td>
<td>641</td>
</tr>
<tr>
<td>Health Policy Studies</td>
<td>194</td>
</tr>
<tr>
<td>Health Policy Studies (HPS)</td>
<td>372</td>
</tr>
<tr>
<td>Health Policy Studies (HPS)</td>
<td>642</td>
</tr>
<tr>
<td>Health Psychology</td>
<td>481</td>
</tr>
<tr>
<td>Hispanic Studies</td>
<td>112</td>
</tr>
<tr>
<td>History</td>
<td>113</td>
</tr>
<tr>
<td>History (HIST)</td>
<td>376</td>
</tr>
<tr>
<td>History (HIST)</td>
<td>644</td>
</tr>
<tr>
<td>History of Music (MHIS)</td>
<td>386</td>
</tr>
<tr>
<td>Honors</td>
<td>53</td>
</tr>
<tr>
<td>How to Apply for Financial Aid</td>
<td>36</td>
</tr>
<tr>
<td>How to use the Graduate Catalog</td>
<td>471</td>
</tr>
<tr>
<td>How to Use the Undergraduate Catalog</td>
<td>14</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>164</td>
</tr>
<tr>
<td>Human Resource Management (HRM)</td>
<td>387</td>
</tr>
<tr>
<td>Human Resource Management (HRM)</td>
<td>646</td>
</tr>
<tr>
<td>Humanities</td>
<td>115</td>
</tr>
<tr>
<td>Humanities (HUM)</td>
<td>388</td>
</tr>
<tr>
<td>Humanities (HUM)</td>
<td>646</td>
</tr>
<tr>
<td>I</td>
<td></td>
</tr>
<tr>
<td>Individual Program of Study</td>
<td>116</td>
</tr>
<tr>
<td>Indust &amp; Manufac Sys Engin (IMSE)</td>
<td>393</td>
</tr>
<tr>
<td>Indust &amp; Manufac Sys Engin (IMSE)</td>
<td>647</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>248</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>554</td>
</tr>
<tr>
<td>Information Sys Engineering (ISE)</td>
<td>654</td>
</tr>
<tr>
<td>Information Systems</td>
<td>499</td>
</tr>
<tr>
<td>Information Systems and Technology</td>
<td>560</td>
</tr>
<tr>
<td>Information Systems Engineering</td>
<td>562</td>
</tr>
<tr>
<td>Information Technology Management</td>
<td>165</td>
</tr>
<tr>
<td>Information Technology Mgmt (ITM)</td>
<td>397</td>
</tr>
<tr>
<td>Information Technology Services</td>
<td>53</td>
</tr>
<tr>
<td>Information Technology Services</td>
<td>472</td>
</tr>
<tr>
<td>Institutional Equity</td>
<td>53</td>
</tr>
<tr>
<td>Institutional Equity</td>
<td>472</td>
</tr>
<tr>
<td>Institutional Equity Officer</td>
<td>53</td>
</tr>
<tr>
<td>Institutional Equity Officer</td>
<td>472</td>
</tr>
<tr>
<td>Instructional Technology</td>
<td>198</td>
</tr>
<tr>
<td>Instructor Requested Drop</td>
<td>46</td>
</tr>
<tr>
<td>Integrated Science</td>
<td>117</td>
</tr>
<tr>
<td>Intelligent Control</td>
<td>563</td>
</tr>
<tr>
<td>Intelligent Systems in Engineering Applications</td>
<td>563</td>
</tr>
<tr>
<td>Internal Combustion Engines</td>
<td>563</td>
</tr>
<tr>
<td>International Admission</td>
<td>31</td>
</tr>
<tr>
<td>International Affairs</td>
<td>53</td>
</tr>
<tr>
<td>International Business (IB)</td>
<td>397</td>
</tr>
<tr>
<td>International Studies</td>
<td>118</td>
</tr>
<tr>
<td>J</td>
<td></td>
</tr>
<tr>
<td>Japanese (JPN)</td>
<td>398</td>
</tr>
<tr>
<td>Journalism and Screen Studies</td>
<td>122</td>
</tr>
<tr>
<td>Journalism and Screen Studies (JASS)</td>
<td>399</td>
</tr>
<tr>
<td>Journalism and Screen Studies (JASS)</td>
<td>654</td>
</tr>
<tr>
<td>K</td>
<td>K-8 STEM2 Teaching Certificate</td>
</tr>
<tr>
<td>L</td>
<td>Language Arts</td>
</tr>
<tr>
<td></td>
<td>Language Arts (LAT)</td>
</tr>
<tr>
<td></td>
<td>Law &amp; Environment (LE)</td>
</tr>
<tr>
<td></td>
<td>Law &amp; Environment (LE)</td>
</tr>
<tr>
<td></td>
<td>Law and Society</td>
</tr>
<tr>
<td></td>
<td>Leadership &amp; Communication in Organizations</td>
</tr>
<tr>
<td></td>
<td>Liberal Studies</td>
</tr>
<tr>
<td></td>
<td>Liberal Studies (LIBS)</td>
</tr>
<tr>
<td></td>
<td>Liberal Studies (LIBS)</td>
</tr>
<tr>
<td></td>
<td>Library Science (LIBR)</td>
</tr>
<tr>
<td></td>
<td>Library Science (LIBR)</td>
</tr>
<tr>
<td></td>
<td>Linguistics</td>
</tr>
<tr>
<td></td>
<td>Linguistics (LING)</td>
</tr>
<tr>
<td></td>
<td>Linguistics (LING)</td>
</tr>
<tr>
<td></td>
<td>Local Government Management (LGM)</td>
</tr>
<tr>
<td>M</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Management Information Systems (MIS)</td>
</tr>
<tr>
<td></td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td></td>
<td>Manufacturing Systems Engineering</td>
</tr>
<tr>
<td></td>
<td>Mardigian Library</td>
</tr>
<tr>
<td></td>
<td>Mardigian Library</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
</tr>
<tr>
<td></td>
<td>Marketing (MKT)</td>
</tr>
<tr>
<td></td>
<td>Marketing (MKT)</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
</tr>
<tr>
<td></td>
<td>Mathematics (MATH)</td>
</tr>
<tr>
<td></td>
<td>Mathematics (MATH)</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering (ME)</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering (ME)</td>
</tr>
<tr>
<td></td>
<td>Medieval and Renaissance Studies</td>
</tr>
<tr>
<td></td>
<td>Microbiology</td>
</tr>
<tr>
<td></td>
<td>Microbiology (MICR)</td>
</tr>
<tr>
<td></td>
<td>Microbiology (MICR)</td>
</tr>
<tr>
<td></td>
<td>Middle East Studies</td>
</tr>
<tr>
<td></td>
<td>Military Science (MILS)</td>
</tr>
<tr>
<td></td>
<td>Mission and Values</td>
</tr>
<tr>
<td></td>
<td>Modern &amp; Classical Language (MCL)</td>
</tr>
<tr>
<td></td>
<td>Modern &amp; Classical Language (MCL)</td>
</tr>
<tr>
<td></td>
<td>Multimedia Engineering</td>
</tr>
<tr>
<td></td>
<td>Music</td>
</tr>
<tr>
<td></td>
<td>Music</td>
</tr>
<tr>
<td></td>
<td>Music Theory</td>
</tr>
<tr>
<td></td>
<td>Music Theory (MTHY)</td>
</tr>
<tr>
<td>N</td>
<td>Natural Science (NSCI)</td>
</tr>
<tr>
<td></td>
<td>Natural Science (NSCI)</td>
</tr>
<tr>
<td></td>
<td>Natural Sciences</td>
</tr>
<tr>
<td></td>
<td>Non-Academic Code of Conduct</td>
</tr>
<tr>
<td></td>
<td>Non-Academic Code of Conduct</td>
</tr>
<tr>
<td>O</td>
<td>Office for Student Engagement</td>
</tr>
<tr>
<td></td>
<td>Office of International Affairs</td>
</tr>
<tr>
<td></td>
<td>Ombuds Services</td>
</tr>
<tr>
<td></td>
<td>Ombuds Services</td>
</tr>
<tr>
<td></td>
<td>On-Campus Dining</td>
</tr>
<tr>
<td></td>
<td>On-Campus Dining</td>
</tr>
<tr>
<td></td>
<td>Online Teaching Certificate Program</td>
</tr>
<tr>
<td></td>
<td>Operations Management (OM)</td>
</tr>
<tr>
<td></td>
<td>Operations Management (OM)</td>
</tr>
<tr>
<td></td>
<td>Organizational Behavior (OB)</td>
</tr>
<tr>
<td></td>
<td>Organizational Behavior (OB)</td>
</tr>
<tr>
<td></td>
<td>Organizational Change in a Global Environment</td>
</tr>
<tr>
<td></td>
<td>Organizational Chart</td>
</tr>
<tr>
<td></td>
<td>Orientation</td>
</tr>
<tr>
<td>P</td>
<td>Parking</td>
</tr>
<tr>
<td></td>
<td>Parking</td>
</tr>
<tr>
<td></td>
<td>Personal Enrichment</td>
</tr>
<tr>
<td></td>
<td>Philosophy</td>
</tr>
<tr>
<td></td>
<td>Philosophy (PHIL)</td>
</tr>
<tr>
<td></td>
<td>Philosophy (PHIL)</td>
</tr>
<tr>
<td></td>
<td>Physics</td>
</tr>
<tr>
<td></td>
<td>Physics (PHYS)</td>
</tr>
<tr>
<td></td>
<td>Physics (PHYS)</td>
</tr>
<tr>
<td></td>
<td>Plastic and Composite Materials</td>
</tr>
<tr>
<td></td>
<td>Policies and Procedures</td>
</tr>
<tr>
<td></td>
<td>Political Science</td>
</tr>
<tr>
<td></td>
<td>Political Science (POL)</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Special Programs</td>
<td>53</td>
</tr>
<tr>
<td>Speech</td>
<td>144</td>
</tr>
<tr>
<td>Speech (SPEE)</td>
<td>461</td>
</tr>
<tr>
<td>Speech (SPEE)</td>
<td>693</td>
</tr>
<tr>
<td>START: Student Advising and Resource Team</td>
<td>53</td>
</tr>
<tr>
<td>Statement of Student Rights and Code of Student Conduct</td>
<td>54</td>
</tr>
<tr>
<td>Statement of Student Rights and Code of Student Conduct</td>
<td>472</td>
</tr>
<tr>
<td>Statement on Academic Integrity</td>
<td>54</td>
</tr>
<tr>
<td>Statement on Academic Integrity</td>
<td>472</td>
</tr>
<tr>
<td>Statistics</td>
<td>144</td>
</tr>
<tr>
<td>Statistics (STAT)</td>
<td>462</td>
</tr>
<tr>
<td>Statistics (STAT)</td>
<td>694</td>
</tr>
<tr>
<td>STEM2: Multidisciplinary Certificate</td>
<td>206</td>
</tr>
<tr>
<td>Structural Analysis and Design</td>
<td>568</td>
</tr>
<tr>
<td>Student Engagement</td>
<td>53</td>
</tr>
<tr>
<td>Student Organizations</td>
<td>53</td>
</tr>
<tr>
<td>Student Rights and Responsibilities</td>
<td>472</td>
</tr>
<tr>
<td>Student Rights and Student Records</td>
<td>54</td>
</tr>
<tr>
<td>Student Rights and Student Records</td>
<td>472</td>
</tr>
<tr>
<td>Student Success Center</td>
<td>53</td>
</tr>
<tr>
<td>Student Success Center</td>
<td>472</td>
</tr>
<tr>
<td>Study Day Policy</td>
<td>53</td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>168</td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>501</td>
</tr>
<tr>
<td>Swedish</td>
<td>144</td>
</tr>
<tr>
<td>Systems Engineering</td>
<td>568</td>
</tr>
<tr>
<td>U</td>
<td></td>
</tr>
<tr>
<td>UM-Dearborn 2017-2018 Catalog</td>
<td>8</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>259</td>
</tr>
<tr>
<td>Undergraduate Senior Residency Requirement</td>
<td>53</td>
</tr>
<tr>
<td>University of Michigan Guidelines for Qualifying for In-State Tuition</td>
<td>46</td>
</tr>
<tr>
<td>University of Michigan Guidelines for Qualifying for In-State Tuition</td>
<td>472</td>
</tr>
<tr>
<td>University of Michigan-Dearborn Officers</td>
<td>11</td>
</tr>
<tr>
<td>Urban and Regional Studies</td>
<td>144</td>
</tr>
<tr>
<td>Urban and Regional Studies (URS)</td>
<td>463</td>
</tr>
<tr>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Vehicle Electronics and Controls</td>
<td>569</td>
</tr>
<tr>
<td>Veteran Affairs</td>
<td>53</td>
</tr>
<tr>
<td>Veterans Affairs</td>
<td>472</td>
</tr>
<tr>
<td>W</td>
<td></td>
</tr>
<tr>
<td>Women’s and Gender Studies</td>
<td>146</td>
</tr>
<tr>
<td>Women’s and Gender Studies (WGST)</td>
<td>464</td>
</tr>
<tr>
<td>Women’s and Gender Studies (WGST)</td>
<td>696</td>
</tr>
<tr>
<td>Women’s Resource Center</td>
<td>53</td>
</tr>
<tr>
<td>Women’s Resource Center</td>
<td>472</td>
</tr>
<tr>
<td>Writing</td>
<td>148</td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Talent Gateway</td>
<td>53</td>
</tr>
<tr>
<td>Talent Gateway</td>
<td>472</td>
</tr>
<tr>
<td>Tax (TAX)</td>
<td>694</td>
</tr>
<tr>
<td>Teacher Certification</td>
<td>31</td>
</tr>
<tr>
<td>Teaching</td>
<td>537</td>
</tr>
<tr>
<td>Teaching English to Speakers of Other Languages Certificate Program</td>
<td>538</td>
</tr>
<tr>
<td>The Campus</td>
<td>23</td>
</tr>
<tr>
<td>Transcripts</td>
<td>51</td>
</tr>
<tr>
<td>Transcripts</td>
<td>472</td>
</tr>
<tr>
<td>Transfer Student Admission</td>
<td>26</td>
</tr>
<tr>
<td>Transportation</td>
<td>53</td>
</tr>
<tr>
<td>Transportation</td>
<td>472</td>
</tr>
<tr>
<td>Tuition Assessment and Fee Regulation</td>
<td>51</td>
</tr>
<tr>
<td>Tuition Assessments and Fee Regulation</td>
<td>472</td>
</tr>
<tr>
<td>Types of Financial Aid</td>
<td>37</td>
</tr>
</tbody>
</table>