

ACTUARIAL MATHEMATICS

Actuarial Mathematics is an interdisciplinary subject that straddles business, economics, mathematics, and statistics. In a single phrase its focus is on the management of risk. The curriculum of this program is designed to support students in becoming an Associate of the Society of Actuaries (SOA). Three of these requirements are pairs of courses that satisfy the Validation by Educational Experience (VEE) requirement of the Society. The balance of the coursework is in support of passing the SOA's exams: Probability, Financial Mathematics, and Investment & Financial Markets.

In addition to the major requirements, students must complete all CASL Degree Requirements (<http://catalog.umd.umich.edu/undergraduate/college-arts-sciences-letters/>).

Pre-Major Requirements

Not counted in the 37 credit hours required for the major.

Code	Title	Credit Hours
ACC 298	Financial Accounting	3
CIS 1501	CS I for Data Scientists	4
ECON 201	Prin: Macroeconomics	3
ECON 202	Prin: Microeconomics	3
MATH 115	Calculus I	4
MATH 116	Calculus II	4
MATH 215	Calculus III	4

Major Requirements

37 credit hours upper level.

Code	Title	Credit Hours
Mathematics Core		12
MATH 325	Probability	
MATH 335	Mathematical Interest Theory	
MATH 425	Mathematical Statistics	
MATH 435	Mathematics of Finance	
Applied Statistics Core		13
STAT 305	Introduction to Data Science for All	
STAT 325	Applied Statistics I	
STAT 430	Applied Regression Analysis	
STAT 450	Multivariate Stat Analysis	
Finance Core		6
FIN 401	Corporate Finance	
FIN 402	Advanced Corporate Finance	
Electives		6
Choose two		
ECON 302	Intermediate Microeconomics	
ECON 305	Economic Statistics	
ECON 355	Health Economics	
ECON 438	Beh Econ for Business & Policy	
ECON 4015	Introduction to Econometrics	
FIN 407	Investment Fundamentals	

FIN 411	Financial Planning
FIN 412	Retirement Planning
FIN 447	Derivative Markets
MATH 420	Stochastic Processes
MATH 451	Advanced Calculus I
MATH 452	Advanced Calculus II
MATH 472	Introduction to Numerical Analysis
MATH 473	Matrix Computation
MKT 352	Mktg Principles and Policies
OB 354	Behavior in Organizations
STAT 460	Time Series Analysis

Total Credit Hours **37**

Notes:

- At least 18 of the 37 upper level credit hours must be elected at UM-Dearborn.
- Students are strongly recommended to complete at least one Experiential Education experience, co-op or internship before graduation.
- Students wishing to use graduate level courses (STAT 500+, MATH 500+) as a part of the 34 hours required for the major must submit a petition to obtain the approval of the Actuarial Studies faculty advisor prior to registering for the class.
- 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.
- A minimum 2.0 GPA in the major is required for graduation.

Learning Goals

- Develop analytical and reasoning skills
- Apply theories and models to measure and manage risk
- Integrate disciplines to create a breadth of knowledge in mathematics and statistics as well as finance and economics
- Prepare for three of the professional exams required to obtain Associate credentials from the Society of Actuaries. The three Professional Exams addressed by this program are: Probability (P), Financial Mathematics (FM), Investment Finances and Models (IFM)