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.

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. This is a hybrid course with weekly meetings as well as an online component. Students who do not attend the first class meeting may be requested to drop per the instructor request drop policy.
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 390C  Topics in Natural Sciences  1 Credit Hour
Topic Title: Applied Restoration and Conservation Ecology Laboratory-
This is a field based lab course that will take place in the field where
students will conduct restoration, stewardship and conservation
planning. Students will be exposed to and interact with professionals
from a variety of organizations in southeast Michigan that are dedicated
to managing and protecting the globally endangered oak-openings
landscape. Some course time will be devoted to reading and discussing
literature on landscape, restoration and conservation ecology. Topics and
papers will emphasize local and regional ecology (lakeplain prairies, oak
openings, wetlands, Great Lakes) and methods for managing, maintaining
and restoring these ecological systems (e.g. fire ecology). Classroom
discussion will emphasize the importance of these systems and their
conservation to human health, well-being, and culture.

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 your 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 laboratory-
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 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 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 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