EARTH SCIENCE BA, BS CERTIFICATE AND MINOR

Earth Science

College of Social & Behavioral Sciences
Department of Geography
206 Morris Hall • 507-389-2617
Website: http://sbs.mnsu.edu/earthscience/

Director: Phillip Larson

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The Earth Science program focuses study on the Earth's interrelated natural systems of the atmosphere, biosphere, geosphere, hydrosphere, cryosphere and Earth's place in the cosmos. Earth Science provides the scientific basis for understanding the interactions of chemical, physical and biological processes at all spatial and temporal scales on our planet - ranging from microscopic to planetary and on timescales from the immediate to billions of years. The impact of Earth systems and humans on one another are of paramount societal importance and are a focus of Earth Science studies.

The Earth Science program provides a number of pathways to study the science of our planet. The Earth Science major (BA or BS), the Certificate in Geomorphology and Earth Surface Processes and the minor in Earth Science are offered. An associated interdisciplinary certificate in "Geoarcheology" is described under "Anthropology" and an associated certificate in "Geographic Information Science" is described under "Geography." For secondary teacher licensure, see the "Science Teaching" program and major.

Academic Map/Degree Plan at www.mnsu.edu/programs/#All

POLICIES/INFORMATION

Admission to Major is granted by the department. Minimum university admission requirements are:

- a minimum of 32 earned semester credit hours.
- a minimum cumulative GPA of 2.00 ("C").

Contact the department for application procedures.

GPA Policy. A GPA of 2.0 or higher in a major or minor is required for graduation.

Refer to the College regarding required advising for students on academic probation.

P/N Grading Policy. All courses in earth science must be taken for a letter grade.

EARTH SCIENCE BA and BS

Degree completion = 120 credits

Major Common Core

AST	101	Introduction to Astronomy (3)
AST	102	Introduction to the Planets (3)
BIOL	100	Our Natural World (4)
CHEM	201	General Chemistry I (5)
GEOG	101	Introductory Physical Geography (3)
GEOG	217	Weather (4)
GEOG	315	Geomorphology (3)
GEOG	410	Climatic Environments (3)
GEOL	121	Physical Geology (4)
GEOL	122	Earth History (4)
GEOL	201	Elements of Mineralogy (4)
PHYS	211	Principles of Physics I (4)

Major Restricted Electives (choose 6 credits)

AST	125L	Observational Astronomy (3)
BIOL	432	Lake Ecology (4)
GEOG	313	Natural Disasters (4)
GEOG	370	Cartographic Techniques (4)
GEOG	373	Introduction to Geographic Information Systems (4)
GEOG	411	Soils Geomorphology (3)
GEOG	412	Advanced Weather (4)
GEOG	414	Biogeography (3)
GEOG	415	Earth Surface Processes (4)
GEOG	416W	Fluvial Geomorphology and Hydrology (4)
GEOG	420	Conservation of Natural Resources (3)
GEOG	440	Field Studies (1-4)
GEOG	471	Digital Field Mapping with GPS (4)
GEOG	474	Introduction to Remote Sensing (4)
GEOG	480	Seminar (1-4)
GEOL	302	Petrology (4)
GEOL	320W	Sedimentology and Stratigraphy (4)
GEOL	330	Structural Geology (4)
GEOL	370	Geotectonics (2)
GEOL	410	Glacial Geology (3)
GEOL	450	Hydrogeology (3)
GEOL	497	Internship (1-10)

Required for Bachelor of Arts (BA) degree ONLY: Language (8 credits)

Minor Required: None.

EARTH SCIENCE BS TEACHING (5-12)

Requirements for the Earth Science, Teaching major can be found in the SCIENCE TEACHING section of this catalog.

Other Graduation Requirements

See the SECONDARY EDUCATION section for admission requirements to Professional Education and a list of required professional education courses.

EARTH SCIENCE MINOR

Required General Education for Minor

AST	101	Introduction to Astronomy (3)
BIOL	100	Our Natural World (4)
CHEM	100	Chemistry in Society (4)
GEOG	101	Introductory Physical Geography (3)
PHYS	100	Cultural Physics (3)

Required for Minor

GEOL	121	Physical Geology (4)
GEOL	122	Earth History (4)
GEOG	217	Weather (4)
GEOG	315	Geomorphology (3)

Required Electives for Minor

(choose one from the following)

AST	102	Introduction to the Planets (3)
GEOG	410	Climatic Environments (3)
GEOG	420	Conservation of Natural Resources (3)

GEOMORPHOLOGY AND EARTH SURFACE PROCESSES CERTIFICATE

Geomorphology is the study of the form and character of the Earth's surface. Earth Surface Processes shape and transform our planet's landscape. Students will develop a broad theoretical understanding and learn to apply specific analytical skill to the field of Geomorphology through a multi-disciplinary curriculum in Geography, Geology and Anthropology.

Major Common Core

Take either GEOG 315 or GEOG 415 and GEOG 410

GEOG	315	Geomorphology (3)
GEOG	415	Earth Surface Processes (4)
GEOG	410	Climatic Environments (3)

Major Restricted Electives (choose one from the following)

GEOG	411	Soils Geomorphology (3)
GEOG	416W	Fluvial Geomorphology and Hydrology (4)

Major Unrestricted Electives

At least six credits must be taken. Choose courses from two of the three listed departments. GEOG 411 and GEOG 416 can be taken as an unrestricted elective if they were not taken as a restricted elective.

ANTH	331	Environmental Anthropology (3)
GEOG	411	Soils Geomorphology (3)
GEOG	416W	Fluvial Geomorphology and Hydrology (4)
GEOG	440	Field Studies (1-4)
GEOL	201	Elements of Mineralogy (4)
GEOL	320W	Sedimentology and Stratigraphy (4)