

GEOSCIENCES

Today is the ideal time for students to choose a career as a geoscientist. Students with a solid high school background in the sciences and mathematics, like the outdoors and field studies, and those that are challenged by a rigorous program of classroom, laboratory and field courses, should consider North Dakota State University's program in geosciences. Geoscientists are presently in demand for energy and mineral exploration, and for solving environmental problems.

Career Opportunities

Geologists who studied at NDSU are currently employed in such diverse fields as environmental geology, groundwater resources, education, community planning, cartography, geochemistry, engineering geology, petroleum and gas exploration, precious-metals mining, and land reclamation.

The Department

The geosciences faculty and instructional staff are dedicated to providing the best possible undergraduate education. Faculty members have earned consistently high ratings for their teaching. They also are active in research and bring the benefits of their research activities to students. Many geoscience undergraduates find part-time employment in faculty research or as laboratory teaching assistants. Courses are taught by a variety of techniques including lectures, labs, active learning, report writing and applied field studies. Field studies have included Black Hills, Death Valley, Washington, Hawaii, Iceland and Bahamas. The department's excellent instructional facilities include X-ray diffraction, petrographic microscopes, GPS and surveying equipment, drones and a continuously-upgraded collection of rocks, minerals, and fossils. Training in geographic information systems (GIS) is provided through the Warren D. Kress Advanced Geography Laboratory. The Optical Dating and Dosimetry Laboratory and the Cosmogenic Nuclide Preparation Laboratory are used for dating the ages of geologic events, and for studies of climate change. The Environmental Geomechanics Laboratory is used for studies of water quality.

A core of geology courses, along with training in mathematics, physics, chemistry, soils, geography, computer science and technical writing will prepare students to handle the diverse challenges encountered in this professional career.

High School Preparation

A solid background in English, mathematics (through trigonometry), biology, chemistry and physics is strongly recommended.

The Faculty and Staff

- A.C. Ashworth, Ph.D., Emeritus, University of Birmingham, England, 1969, Earth History, Paleontology, Paleoecology
- S.S. Day, Ph.D., University of Minnesota, 2012, Fluvial Geomorphology, Slope Stability, Geospatial Sciences
- B.J.C. Laabs, Ph.D., University of Madison, Wisconsin, 2004, Quaternary Geology, Paleoclimate, Geochronology
- K. Lepper, Ph.D., Oklahoma State University, 2001, Glacial Geology, Hydrogeology
- P. Oduor, Ph.D., University of Missouri, Rolla, 2004, Geochemistry, Geographic Information Systems
- J.L. Rock, M.S., North Dakota State University, 2009
- B. Saini-Eidukat, Ph.D., University of Minnesota, 1991, Mineralogy, Petrology, Geochemistry
- D.P. Schwert, Ph.D., Emeritus, University of Waterloo, Canada, 1978, Quaternary Geology, Land Use
- L.S. Tackett, Ph.D., University of Southern California, 2014, Paleontology, Stratigraphy
- S.A. Wood, Ph.D., Princeton University, 1985, Aqueous Geochemistry, Mineral Deposits

Special Note

Students in the geosciences program are encouraged to use their elective credits in courses that will enhance their professional skills (i.e., foreign languages, geography, archaeology, soils, etc.). In addition, the Department of Geosciences offers elective courses in environmental geology, glacial geology, geochemistry, hydrogeology and remote sensing.

Geology Plan of Study

Please note this is a sample plan of study and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Students are encouraged to work with their academic advisor on a regular basis to review degree progress and customize an individual plan of study.

First Year			
Fall	Credits	Spring	Credits
GEOL 105 & 105L Physical Geology and Physical Geology Lab	4	GEOL 106 & 106L The Earth Through Time and The Earth Through Time Lab	4
MATH 165 Calculus I	4	CHEM 122 or 151 General Chemistry II or Principles of Chemistry II	3
CHEM 121 or 150 General Chemistry I or Principles of Chemistry I	3	CHEM 122L or 161 General Chemistry II Laboratory or Principles of Chemistry Laboratory II	1
CHEM 121L or 160 General Chemistry I Laboratory or Principles of Chemistry Laboratory I	1	MATH 166 Calculus II	4
ENGL 110 College Composition I	4	ENGL 120 College Composition II	3
	16		15
Second Year			
Fall	Credits	Spring	Credits
GEOL 410 Sedimentology/Stratigraphy	4	GEOL 422 Petrology	3
GEOL 420 & 421 Mineralogy & Mineralogy Laboratory	4	GEOL 423 Petrography	1
GEOG 455 Introduction to Geographic Information Systems	4	GEOL 412 Geomorphology	3
Gen Ed Wellness	2	GEOL 350 & 303 Invertebrate Paleontology and Paleontology Field Course	4
GEOL 301 or 302 Lake Superior Field Course or Black Hills Field Course	2	COMM 110 Fundamentals of Public Speaking	3
	16		14
Third Year			
Fall	Credits	Spring	Credits
PHYS 211 or 251 College Physics I or University Physics I	3	PHYS 212 or 252 College Physics II or University Physics II	3
PHYS 211L or 251L College Physics I Laboratory or University Physics I Laboratory	1	PHYS 212L or 252L College Physics II Laboratory or University Physics II Laboratory	1
SOIL 444 Soil Genesis and Survey	3	GEOL 491 Seminar (Junior)	1
GEOL 450 Field Geology	3	Gen Ed Humanities & Fine Arts/Elective	6
GEOL 457 Structural Geology	4	Gen Ed Social & Behavioral Sciences/Gen Ed Cultural Diversity	3
ENGL 324 Writing in the Sciences	3		
	17		14
Fourth Year			
Fall	Credits	Spring	Credits
CSCI 122, 160, or 227 Visual BASIC, Computer Science I, or Computing Fundamentals I	3	Electives	10
Gen Ed Social & Behavioral Sciences	3	College Humanities or Social Sciences	3
College Humanities or Social Sciences	3	GEOL 491 Seminar (Senior)	1
Electives	7		
	16		14
Total Credits: 122			

View NDSU equivalencies of transfer courses at: www.ndsu.edu/transfer/equivalencies

For Further Information

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