

# Geoscience (GEOSCI)

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## Courses

### **GEOSCI 102. Natural Hazards. 3 Credits.**

Explores the dynamic character of the Earth System by characterizing and understanding the causes and consequences of natural hazards. Hazards considered will include earthquakes, tsunamis, volcanic hazards (local, regional, global scales), meteorological hazards (hurricanes, tornadoes, flooding, coastal erosion), and landslides.

Fall and Spring.

### **GEOSCI 198. First Year Seminar. 3 Credits.**

First Year Seminar, topics vary.

Reserved for New Incoming Freshman.

### **GEOSCI 202. Physical Geology. 4 Credits.**

Description and analysis of the geological processes that shape the Earth's major internal and external features. Origins, properties and use of the Earth's rock and mineral resources. Students will not receive credit for both Geosci 202 and Geosci 102.

Fall and Spring.

### **GEOSCI 203. Earth System History. 3 Credits.**

The physical history of the Earth through geologic time and the attendant evolution of biological organisms; principles governing interpretation of the rock and fossil record; unraveling of events culminating in modern landscape and life forms.

P: Geosci 202 with at least a C grade.

Spring.

### **GEOSCI 204. Earth System History Laboratory. 1 Credit.**

Practical application of geologic principles and techniques to interpretation of Earth history. Introduction to stratigraphic principles, sedimentary environments, and fossil identification.

P: Geosci 203 with at least a C grade or conc enr.

Spring.

### **GEOSCI 222. Introduction to Weather & Climate. 3 Credits.**

Fundamental processes of the atmosphere, the resulting weather and climate, and the effects of the atmosphere on other aspects of the Earth's environments and on humans.

Fall and Spring.

### **GEOSCI 223. Introduction to Weather and Climate Laboratory. 1 Credit.**

Laboratory course to accompany GEOSCI 222. Application of physical principles learned in lecture through a combination of data analysis, problem solving, and experimentation.

P: conc enr in GEOSCI 222

Spring.

### **GEOSCI 298. Independent Study. 1-4 Credits.**

Independent study is offered on an individual basis at the student's request and consists of a program of learning activities planned in consultation with a faculty member. A student wishing to study or conduct research in an area not represented in available scheduled courses should develop a preliminary proposal and seek the sponsorship of a faculty member. The student's advisor can direct him or her to instructors with appropriate interests. A written report or equivalent is required for evaluation, and a short title describing the program must be sent early in the semester to the registrar for entry on the student's transcript.

P: fr or so st with cum gpa > or = 2.50; or jr or sr st with cum gpa > or = 2.00.

Fall and Spring.

### **GEOSCI 299. Travel Course. 1-6 Credits.**

Travel courses are conducted to various parts of the world and are led by one or more faculty members. May be repeated to different locations.

P: cons of instr & prior trip arr & financial deposit.

### **GEOSCI 301. Introduction to Geoscience Field Methods. 2 Credits.**

A survey of methods of field investigations including description and measurement of rock sequences, introduction to geological mapping, surveying, and writing geological reports.

P: Geosci 202.

Spring Odd.

### **GEOSCI 325. Regional Climatology. 3 Credits.**

The elements, controls, and classification of climates; the distribution of climate types over the earth; world patterns of climate.

REC: Geosci 222.

Fall Even.

**GEOSCI 340. Introduction to Mineralogy & Petrology. 4 Credits.**

Explores mineral chemistry and structures, identification, association, and occurrence. Surveys the distribution, chemistry, and mineral associations in relation to tectonic environment to interpret rock forming processes.

P: Geosci 202 with at least a C grade.

Fall Even.

**GEOSCI 350. Structural Geology and Tectonics. 3 Credits.**

How does solid rock deform, and how can this help us understand a dynamic Earth system? Students will be introduced to the geometric, kinematic and dynamic aspects of structures in the Earth's crust. We will utilize basic methods of structural geology to better understand the global plate tectonic processes that shape our world, from earthquakes to mountain ranges.

P: GEOSCI 202. REC: MATH 202

Fall Odd.

**GEOSCI 402. Sedimentology & Stratigraphy. 3 Credits.**

Modern concepts and techniques used to study and interpret the origins and distribution of sediments and sedimentary rocks; principles of bio-stratigraphy and physical stratigraphy and sedimentology.

P: Geosci 202 with at least a C grade and 203 with at least a C grade.

Fall Odd.

**GEOSCI 421. Geoscience Field Trip. 1-3 Credits.**

Intensive three or four-day field study tour of the geology, soils, and landscapes of Wisconsin and/or surrounding states. Each offering will focus on a different geological theme and will focus on a specific region. Cost of transportation, guidebook, meals and lodging borne by student. Course is repeatable for credit if topics differ; may be taken 6 times for a total of 9 credits.

P: GEOSCI 202 with at least a C grade OR Consent of the instructor.

Fall and Spring.

**GEOSCI 432. Hydrogeology. 3 Credits.**

Introduction to the geological and physical principles governing ground water flow. Description of aquifer properties, chemical processes, equation of flow, well hydraulics, and environmental concerns.

P: GEOSCI 202 with at least a C grade; REC: ENV SCI 330 with at least a C grade; MATH 202.

Spring.

**GEOSCI 450. Ore Deposits. 3 Credits.**

This course is a survey of economically important Earth materials. How do ore bodies form? What are they used for? What strategies can we use to extract the ore? Additionally, we will also focus on the environmental impacts from extraction and what can be done as possible remediation strategies.

P: GEOSCI 202. REC: GEOSCI 340

Spring Even.

**GEOSCI 470. Glacial Geology & Landscapes. 3 Credits.**

This course explores the extremes in environmental behavior which characterize the last 2.6 million years of Earth's history during the Pleistocene and Holocene Epochs. The course will provide students with the skills necessary to be able to recognize and describe glacial landforms, the materials of which they are composed, and the geologic processes by which they form.

P: GEOSCI 202 with at least a C grade; REC: GEOSCI 203.

Fall Even.

**GEOSCI 478. Honors in the Major. 3 Credits.**

Honors in the Major is designed to recognize student excellence within interdisciplinary and disciplinary academic programs.

P: min 3.50 all cses req for major and min gpa 3.75 all UL cses req for major.

**GEOSCI 491. Senior Thesis/Research in Geoscience. 3 Credits.**

A project-based capstone experience where individual students address a specific aspect of geoscience through the use of scientific and mathematical skills.

P: Senior standing, MATH 260 with C or better, instructor consent. REC: GEOSCI 402, 432, or other appropriate courses, depending upon focus of thesis project.

Fall and Spring.

**GEOSCI 492. Special Topics in Geoscience. 1-4 Credits.**

Topics not covered by regular courses, such as geomorphology, geology of Wisconsin, laboratory methods, and others. Offerings of different topics can be repeated for credit.

P: None. REC: GEOSCI 202.

**GEOSCI 495. Teaching Assistantship. 1-6 Credits.**

The student and supervising teacher must prepare a statement that identifies the course with which the assistantship will happen, objectives for the assistantship, and expectations in order to fulfill the course objectives. Students are not eligible to receive credit in both the course they assist the instructor with and the teaching assistantship in the same semester. Typically student has previously taken the course prior to enrollment in the assistantship. Course is repeatable for credit.

Fall and Spring.

**GEOSCI 496. Project/Research Assistantship. 1-6 Credits.**

The student must prepare a research proposal, and both parties should identify the research arrangement and how the student will complete the work to fulfill the course objectives within the assigned term.

**GEOSCI 497. Internship. 1-12 Credits.**

Supervised practical experience in an organization or activity appropriate to a student's career and educational interests. Internships are supervised by faculty members and require periodic student/faculty meetings. Course is repeatable for credit.

P: jr st.

Fall and Spring.

**GEOSCI 498. Independent Study. 1-4 Credits.**

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