

# GEOSCIENCE (GEOS)

## GEOS 500 INDEPENDENT STUDY OR RESEARCH1-3 Credits

Designed for the graduate student seeking an individual problem in Geoscience. The number of course credits is determined by the topic and the amount of work required.

**Add Consent:** Instructor Consent

**Notes:** May be repeated.

**Requirements:** Permission of instructor, Dean of Graduate Studies, and Academic Vice President.

## GEOS 526A MICROSCOPY THEORY1 Credit

Microscopic principles and techniques focusing on the use of microscopes in scientific inquiry and diagnosis. Includes light and optic theory, specimen preparation, image collection and interpretation, and types of research microscopes

**Cross-Listed:** BIOL536A/GEOS526A

**Prerequisites:** 12 hours of Biology or Geoscience courses

**Dual-listed:** GEOS 426A

## GEOS 526B INTRODUCTION TO SCIENTIFIC RESEARCH2 Credits

Scientific research methodology, including development of testable hypotheses, research design, data analysis introduction, grant proposal writing and writing research papers.

**Cross-Listed:** BIOL536B/GEOS526B

**Prerequisites:** 12 hours of Biology or Geoscience courses

**Dual-listed:** GEOS 426B

## GEOS 530 SPECIAL TOPICS IN GEOSCIENCE1-3 Credits

To meet special needs of Geoscience students.

**Notes:** May be repeated.

## GEOS 531 GEOLOGY OF WATER RESOURCES3 Credits

An introduction to the origin and nature of groundwater, its interaction with surface water, geological methods of groundwater exploration, and factors affecting water supply and quality. Requirements: Field trips.

**Dual-listed:** GEOS 431

## GEOS 534 INTRODUCTION TO OCEANOGRAPHY3 Credits

An earth-system approach to the study of the oceans. Includes discussion of physical and biological phenomena in the oceans; analyzes interactions among the hydrosphere, atmosphere and geosphere, and considers humans as stewards of ocean resources. Field trips may be required.

**Dual-listed:** GEOS 434

## GEOS 535 FIELD EXPERIENCE IN GEOSCIENCE1-3 Credits

Typically a one to three (1-3) week workshop. Field excursions to study major geologic features and provinces in North America or elsewhere.

**Dual-listed:** GEOS 435

**Add Consent:** Instructor Consent

## GEOS 536 FIELD EXCAVATION AND PROCEDURES1-3 Credits

A summer workshop designed to give the student field experience in the development of paleontological sites.

**Dual-listed:** GEOS 436

**Add Consent:** Instructor Consent

## GEOS 538 PETROLEUM GEOLOGY3 Credits

The origin, characteristics, occurrence, exploration and development of/ for petroleum. Field trips are required.

**Prerequisites:** GEOS 231 and GEOS 231L

**Dual-listed:** GEOS 438

## GEOS 539 SEDIMENTOLOGY AND STRATIGRAPHY3 Credits

The origin and characteristics of sedimentary rocks.

**Prerequisites:** GEOS 231, GEOS 231L, GEOS 234, and GEOS 234L

**Co-requisites:** GEOS 539L

**Dual-listed:** GEOS 439

## GEOS 539L SEDIMENTOLOGY AND STRATIGRAPHY LABORATORY1 Credit

Laboratory and field studies of sediments and sedimentary rocks.

**Prerequisites:** GEOS 231, GEOS 231L, GEOS 234, and GEOS 234L

**Co-requisites:** GEOS 539

## GEOS 544 LACUSTRINE SEDIMENTS AND BIOTA2 Credits

Study of physical and biotic processes in lakes, with an emphasis on earth system interactions.

**Cross-Listed:** BIOL544/GEOS544

**Prerequisites:** BIOL 225, BIOL 336, and BIOL 336L

**Co-requisites:** GEOS 544L

## GEOS 544L LACUSTRINE SEDIMENT AND BIOTA LABORATORY1 Credit

Laboratory and field experience in freshwater systems.

**Cross-Listed:** BIOL544L/GEOS544L

**Prerequisites:** BIOL 225, BIOL 336, and BIOL 336L

**Co-requisites:** GEOS 544

## GEOS 546 FIELD CAMP3-6 Credits

Intensive experience in field data collection leading to the solution of geologic problems; construction of geologic maps, stratigraphic columns, cross-sections and preparation of reports.

**Prerequisites:** GEOS 338, GEOS 431, GEOS 432, and GEOS 439

**Dual-listed:** GEOS 446

**Notes:** Course conducted off-campus.

**Requirements:** Instructional fee.

## GEOS 600 INDEPENDENT STUDY OR RESEARCH1-3 Credits

Research investigations in Geoscience.

**Add Consent:** Instructor Consent

**Requirements:** Permission of instructor, Dean of Graduate Studies, and Academic Vice President.

## GEOS 622 RESEARCH APPLICATIONS WITH GIS3 Credits

Research and applications of geographic information systems in geological mapping. Problem description and analysis methods will be integrated with teaching of basic GIS skills. Note: Learning communities will be established with students in GEOS 322. Field trips may be required.

## GEOS 628 RESEARCH PETROGRAPHY3 Credits

Research and application of petrographic methods to geological problems and integration with undergraduate teaching of rocks and minerals. Note: Learning communities will be established with students in GEOS 338. Field trips may be required.

## GEOS 630 TOPICS IN GEOSCIENCES3 Credits

Selected Geoscience topics. Course content will vary to meet the special needs of students. The course may involve classroom and/or field oriented activity. Credit is dependent upon length of course and depth of study. Field trips may be required.

**Notes:** May be repeated with different topics for up to six (6) course credits.

## GEOS 632 ADVANCED STRUCTURE AND TECTONICS3 Credits

Advanced methods and practice of mapping and interpretation of structures in the field. Note: Learning communities will be established with students in GEOS 432. Field trips may be required.

**GEOS 635 FIELD PROBLEMS1-3 Credits**

Field excursions to study geologic features and their interpretation. Learning communities will be established with students in GEOS 435. Field trips are required.

**GEOS 655 SCHOLARLY PROJECT1-3 Credits**

For students selecting Plan II, as listed under Program Requirements. Scholarly project pertaining to a field of specialization. Designed in consultation with the student's graduate committee and includes an extensive paper summarizing the project.

**Requirements:** Must complete three (3) course credits.

**GEOS 660 THESIS RESEARCH1-6 Credits**

For students selecting Plan I, as listed under Program Requirements. Original investigations in Geoscience leading to the master's thesis.

**Requirements:** Must complete 3-6 course credits; prior to registration, the proposal must be approved by the student's committee and the Dean of Graduate Studies.