

GEOL - GEOLOGY

GEOL 1011K Introductory Geosciences I (3-1-4)

This course covers Earth materials and processes.

GEOL 1110 Natural Disasters: Our Hazardous Environment (3-0-3)

This course examines natural environmental hazards of geologic, hydrologic, meteorologic, and extraterrestrial nature, including: volcanoes, earthquakes, tsunami, subsidence, floods, mass wasting, severe weather, and meteorite/comet impacts. Class lectures focus on the causes, processes, and effects of these types of natural hazards on the earth, life on the planet, and human society in particular.

GEOL 1121 Introductory Geoscience I: Physical Geology (3-0-3)

This course will explore the fundamental processes that have formed and continue to shape the earth geologically. Surficial and internal geologic processes will be explored in the context of plate tectonics and impacts on society (both modern and historical). Geologic hazards and earth resources will be examined, including the interaction between humans and the geological aspects of our environment. Students wishing to take this as a lab science must also register for GEOL 1121L.

GEOL 1121K Introductory Geosciences I & Lab (3-1-4)

This is a 4 semester-credit-hour course, equivalent to an on-campus geology lecture course combined with a geology laboratory course. This course covers Earth materials and processes. This course covers Earth materials and processes. Course available through eCore.

GEOL 1121L Introductory Geoscience I: Physical Geology Lab (0-2-1)

The accompanying lab to GEOL 1121. The major focus of the laboratory is the application of basic geologic principles in the identification of minerals and rocks, analysis of maps and geologic data sets, the use of geologic tools, and exploration of the scientific method in the course of geologic science. GEOL1121 must be registered for separately.

Prerequisite(s): (GEOL 1121 (may be taken concurrently) or GEOL 1121H (may be taken concurrently))

GEOL 1122 Introductory Geo-sciences II: Historical Geology (3-0-3)

Prerequisite: GEOL 1121 recommended as prerequisite or co-requisite.

This course covers geologic time, sedimentary environments, fossils, and Earth history.

Prerequisite(s): GEOL 1121 with a minimum grade of C

GEOL 1322 Introductory Geo-sciences II: Historical Geology Lab (0-2-1)

Laboratory exercises in the topics of GEOL 1122: techniques for determining relative and absolute ages; identification of fossils; correlating sedimentary rocks, determining paleoenvironments and paleogeography.

Prerequisite(s): GEOL 1122 (may be taken concurrently) with a minimum grade of C

GEOL 2225 The Fossil Record (3-2-4)

A survey of the history of life known from the fossil record. Includes principles of paleontology, evolutionary theory, and mass extinction. Field trips other than class time will be scheduled.

GEOL 3201 Mineralogy and Petrology I (3-2-4)

This course introduces the basic rock forming minerals, common igneous, sedimentary, and metamorphic rocks, as well as the chemical and physical processes by which they form.

Prerequisite(s): GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C

GEOL 3225 Geosciences Field Trip: Geology and Environment of Selected U.S. Regions (1-4-3)

Prerequisites: GEOL1121 and GEOL1121L with a minimum grade of C.

This course will focus on the study of the geology and environment of a selected U.S. region, including an extended field trip to points of interest in that region. Interactions between the hydrosphere, biosphere, atmosphere, and solid Earth, including how human societies affect and are affected by interactions between these 'spheres', will be explored in detail. The selected region and topic will vary by semester and may be repeated for up to 9 credit hours.

Repeatability: Repeatable for credit up to 2 times or 9 hours.

GEOL 3265 Stratigraphy and Basin Analysis (3-2-4)

Prerequisite: GEOL 3235. An introduction to the study of rock strata and their interpretation. Topics include: stratigraphic relationships, lithostratigraphic and biostratigraphic correlation, recognition of depositional environments, and the tectonic evolution of sedimentary basins. Field trips other than during class time may be scheduled.

Prerequisite(s): GEOL 3235 with a minimum grade of C

GEOL 3275 Mapping and Field Geology (1-5-3)

Prerequisite: GEOL 1122. Measuring and recording geologic data using Brunton compass, plane table and alidade, air photos, and topographic maps; using air photos to infer geologic relationships; preparation of short reports based on field work. Extended time in the field will be required.

Prerequisite(s): GEOL 1122 with a minimum grade of C

GEOL 4175 Undergraduate Research ((0-3)-(0-6)-(1-6))

Prerequisite: Permission of department. Open to students of demonstrated academic ability and capable of performing independent study; planning, conducting and reporting geological or other earth science research. Much time conducting research outside scheduled class required. May be repeated for credit (S/U grading). Variable hours.

Restriction(s):

Enrollment limited to students in the Department Prerequisite college.

GEOL 4201 Mineralogy and Petrology II (3-2-4)

This course covers advanced topics in mineralogy and petrology, including ore forming minerals, the geochemistry of mineral and rock forming processes, radiometric dating, trace element discrimination, phase diagrams, advanced petrographic techniques, crystallography, and the relationships between mineralogy, petrology, and tectonic processes.

Prerequisite(s): GEOL 3201 with a minimum grade of C

GEOL 4205 Geology of Georgia (1-6-4)

This course is designed to introduce students to the general geology of Georgia, including the major geologic provinces, the rocks and structures found in each, and the geologic history of the state. Additionally, the class will explore how Georgia's geologic history fits into that of the southeastern United States. (Course fee required.)

GEOL 4235 Geographic Information and Global Positioning Systems (3-3-4)

Prerequisites: GEOL 1121 and GEOL 1121L, both grades of C or better, or permission of instructor. Utilization of GIS and GPS to portray existing spatial datasets, create new datasets and analyze datasets with emphasis on environmental applications, especially the analysis of change in environmental conditions on a landscape scale. Projects will require lab time beyond that scheduled.

Prerequisite(s): GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C

Restriction(s):

Enrollment limited to Junior or Senior students.

GEOL 4275 Structural Geology (3-2-4)

This course examines the fundamentals of stress and strain as they pertain to geology, including the mechanical properties and behavior of earth materials. Additionally, the course explores geologic structures, their recognition and interpretation in the field, and methods for solving structural problems. These concepts are examined within the framework of the Earth's crust, the evolution of mountain belts, continents and basins, and the relationship between structures, deformation, and plate tectonics. (Course fee required.)

Prerequisite(s): (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C and GEOL 1122 with a minimum grade of C and GEOL 1322 with a minimum grade of C and MATH 1111 with a minimum grade of C) or (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C and GEOL 1122 with a minimum grade of C and GEOL 1322 with a minimum grade of C and MATH 1113 with a minimum grade of C) or (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C and GEOL 1122 with a minimum grade of C and GEOL 1322 with a minimum grade of C and MATH 1125 with a minimum grade of C) or (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C and GEOL 1122 with a minimum grade of C and GEOL 1322 with a minimum grade of C and MATH 1131 with a minimum grade of C) or (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C and GEOL 1122 with a minimum grade of C and GEOL 1322 with a minimum grade of C and MATH 1132 with a minimum grade of C)

GEOL 4698 Internship in the Geosciences (0-0-(1-3))

Prerequisite: Junior Standing. Work experience on an approved project supervised by a faculty member. May be repeated for a total of six credit hours.

Restriction(s):

Enrollment limited to Junior or Senior students.

Enrollment limited to students major in Secondary Ed - Earth Science or Geology.

Enrollment limited to students in a Bachelor of Science degree.

Enrollment limited to students in the College of Letters Sciences college.

GEOL 4795 Senior Geology Seminar (2-0-2)

Prerequisite: Senior standing. Various topics in geoscience, selected by instructor, may be repeated for additional credit if topics differ.

Restriction(s):

Enrollment limited to Senior, Non-Degree - Undergrad PostBac or Degree - Undergrad PostBac students.

GEOL 4796 Senior Capstone (1-0-1)

This senior-level class is focused on preparing ESS students for post-baccalaureate academic and professional pursuits. The course is designed to allow students the opportunity to hone their critical thinking skills, advance their capacity to solve problems, and improve their ability to communicate effectively by synthesizing previous coursework in the diverse fields of earth and space science. Students will be assessed based on preparation of an academic portfolio and a capstone exam.

Restriction(s):

Enrollment limited to Senior students.

GEOL 4905 Senior Thesis (0-0-4)

Prerequisite: Senior standing and permission of instructor. An undergraduate research course culminating in a senior thesis. Requires significant independent research supervised by a geology faculty advisor and committee. S/U grading.

Restriction(s):

Enrollment limited to Senior students.

Enrollment limited to students major in Geology, Earth and Space Science Sec Ed or Earth Science.

GEOL 5115G Geochemistry (3-0-3)

An overview of geologically significant chemical systems. Topics include: cycling of elements within the Earth's crust and mantle, composition and evolution of igneous magmas, chemical weathering, formation of chemical sediments, metamorphism, and development of natural resources.

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5115U Geochemistry (3-0-3)

An overview of geologically significant chemical systems. Topics include: cycling of elements within the Earth's crust and mantle, composition and evolution of igneous magmas, chemical weathering, formation of chemical sediments, metamorphism, and development of natural resources.

Prerequisite(s): (GEOL 3266 with a minimum grade of C and CHEM 1212 with a minimum grade of C and CHEM 1212L with a minimum grade of C) or (GEOL 3266 with a minimum grade of C and CHEM 1212K with a minimum grade of C)

GEOL 5117G Global and Climate Change (3-0-3)

This course examines climate and global change from a modern and historical perspective. The basic science of the natural controls over both present and past climate, as well as the methods of studying past climates are included, with some focus on the evidence for climate change using quantitative analysis. The course also addresses concerns over human influences on our present climate and the potential impacts of climate change globally, as well as possible solutions or adaptations.

Restriction(s):

Enrollment limited to Degree - Graduate, Non-Degree - Graduate, Transient - Graduate, Audit - Graduate or Teacher Cert - Graduate students.

Enrollment limited to students in a Master of Science degree.

GEOL 5117U Global and Climate Change (3-0-3)

This course examines climate and global change from a modern and historical perspective. The basic science of the natural controls over both present and past climate, as well as the methods of studying past climates are included, with some focus on the evidence for climate change using quantitative analysis. The course also addresses concerns over human influences on our present climate and the potential impacts of climate change globally, as well as possible solutions or adaptations.

Prerequisite(s): (MATH 1111 with a minimum grade of C and GEOL 1121 with a minimum grade of C) or (MATH 1111 with a minimum grade of C and GEOL 1122 with a minimum grade of C) or (MATH 1111 with a minimum grade of C and ENVS 1105 with a minimum grade of C) or (MATH 1111 with a minimum grade of C and CHEM 1211 with a minimum grade of C)

GEOL 5135G Oceanography (3-0-3)

An overview of the world's oceans, including: geology of ocean basins and oceanic sediments; the physical oceanography of currents, waves, and tides; the chemistry of seawater; and the nature of shorelines and coastal processes.

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5135U Oceanography (3-0-3)

An overview of the world's oceans, including: geology of ocean basins and oceanic sediments; the physical oceanography of currents, waves, and tides; the chemistry of seawater; and the nature of shorelines and coastal processes.

GEOL 5165G Hydrology (3-0-3)

Prerequisites: CHEM 1211, CHEM 1211L, and MATH 1132. Study of hydrological systems on and beneath the earth's surface. Topics include: precipitation and evaporation, runoff and stream flow, groundwater infiltration, flownets and flow direction analysis of groundwater, properties of aquifers, regional groundwater flow patterns, and water pollution.

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5165U Hydrology (3-0-3)

Study of hydrological systems on and beneath the earth's surface. Topics include: precipitation and evaporation, runoff and stream flow, groundwater infiltration, flownets and flow direction analysis of groundwater, properties of aquifers, regional groundwater flow patterns, and water pollution.

Prerequisite(s): (PHYS 1111 with a minimum grade of C and PHYS 1311 with a minimum grade of C) or (PHYS 2211 with a minimum grade of C and MATH 1131 with a minimum grade of C) or (PHYS 2311 with a minimum grade of C and MATH 1131 with a minimum grade of C)

GEOL 5175G Physical Anthropology and Archeology (3-0-3)

A survey of primate and human origins, the paleontological record of human evolution and the study of Paleolithic cultures and the diverse biology of modern human populations. Course work will include techniques of lithic archeology and focus on North American native prehistory.

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5175U Physical Anthropology and Archeology (3-0-3)

A survey of primate and human origins, the paleontological record of human evolution and the study of Paleolithic cultures and the diverse biology of modern human populations. Course work will include techniques of lithic archeology and focus on North American native prehistory.

Restriction(s):

Enrollment limited to Junior, Senior, Non-Degree - Undergrad PostBac or Degree - Undergrad PostBac students.

GEOL 5215G Geomorphology (3-2-4)

Evolution of land forms in various climates and the formation of soils.

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5215U Geomorphology (3-2-4)

Evolution of land forms in various climates and the formation of soils.

Prerequisite(s): (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C)

GEOL 5255G Environmental Geology (3-2-4)

Prerequisite: GEOL 1121. Examination of human interaction with the geologic environment. Geologic hazards such as earthquakes, floods, landslides, and volcanic eruptions will be considered, as well as resources and waste management, and human impacts on the physical environment.

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5255U Environmental Geology (3-2-4)

Prerequisite: GEOL 1121. Examination of human interaction with the geologic environment. Geologic hazards such as earthquakes, floods, landslides, and volcanic eruptions will be considered, as well as resources and waste management, and human impacts on the physical environment.

Prerequisite(s): GEOL 1121 with a minimum grade of C

GEOL 5258G Field Methods in the Earth and Environmental Sciences (2-6-5)

Introduction to basic field methods used in the earth and environmental sciences. Field investigations focus on topics such as topographic and geologic mapping, groundwater and surface water analysis, as well as other types of field investigations. Laboratory exercises will include trips to off-campus sites and may include weekend field exercises.

Restriction(s):

Enrollment limited to Degree - Graduate students.

GEOL 5258U Field Methods in the Earth and Environmental Sciences (2-6-5)

Introduction to basic field methods used in the earth and environmental sciences. Field investigations focus on topics such as topographic and geologic mapping, groundwater and surface water analysis, as well as other types of field investigations. Laboratory exercises will include trips to off-campus sites and may include weekend field exercises.

Prerequisite(s): ENVS 1205K with a minimum grade of C or (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C)

GEOL 5275G Vertebrate Paleontology (3-2-4)

Prerequisite: GEOL 1122. History and taxonomy of the vertebrates. Analyses of vertebrate origins, periods of mass extinctions, evolution of body structures and function. Laboratory survey of the taxa and techniques of curating. Field trips other than during class time will be scheduled.

Prerequisite(s): (GEOL 1122 with a minimum grade of C and GEOL 2225 with a minimum grade of C)

Restriction(s):

Enrollment is limited to Graduate Level level students.

GEOL 5275U Vertebrate Paleontology (3-2-4)

Prerequisite: GEOL 1122. History and taxonomy of the vertebrates. Analyses of vertebrate origins, periods of mass extinctions, evolution of body structures and function. Laboratory survey of the taxa and techniques of curating. Field trips other than during class time may be scheduled.

Prerequisite(s): (GEOL 1122 with a minimum grade of C and GEOL 2225 with a minimum grade of C)

GEOL 5535G Tectonics and Geophysics of Planetary Interiors (3-0-3)

This course will examine the geophysical and geochemical nature of the Earth with respect to plate motions, paleomagnetism, seismology, and gravity, with specific focus on our planet's internal structure and the nature of plate tectonics. These topics will be explored within the framework of tectonic processes, including the physical and chemical evolution of our planet through time.

GEOL 5535U Tectonics and Geophysics of Planetary Interiors (3-0-3)

This course will examine the geophysical and geochemical nature of the Earth with respect to plate motions, paleomagnetism, seismology, and gravity, with specific focus on our planet's internal structure and the nature of plate tectonics. These topics will be explored within the framework of tectonic processes, including the physical and chemical evolution of our planet through time.

Prerequisite(s): GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C and GEOL 3201 with a minimum grade of C

GEOL 5555G Selected Topics in Geology ((0-6)-(0-6)-(1-6))

Prerequisite: GEOL 1121 and GEOL 1121L, with C or better in each course. Course will encourage students to pursue specific topics in geology to greater depth. These topics might include the details of regional geology through field trips and/or library study. Course may be taken three times for credit. (Course fee required.)

Prerequisite(s): (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C)

Repeatability: Repeatable for credit up to 3 times or 18 hours.

Restriction(s):

Enrollment is limited to Graduate Level level students.
Enrollment limited to students in the Department Prerequisite college.

GEOL 5555U Selected Topics in Geology ((0-6)-(0-6)-(1-6))

Prerequisite: GEOL 1121 and GEOL 1121L, with C or better in each course. Course will encourage students to pursue specific topics in geology to greater depth. These topics might include the details of regional geology through field trips and/or library study. Course may be taken three times for credit.

Prerequisite(s): (GEOL 1121 with a minimum grade of C and GEOL 1121L with a minimum grade of C)

Repeatability: Repeatable for credit up to 3 times or 18 hours.

Restriction(s):

Enrollment limited to students in the Department Prerequisite college.

GEOL 5715G Earth and Space Sciences Seminar (1-0-1)

Seminar emphasizes current topics through readings and presentations by practitioners in earth and space sciences. Undergraduate level: Course may be repeated up to 3 credits. Graduate level: Course may be repeated up to 4 credits.

GEOL 5715U Earth and Space Sciences Seminar (1-0-1)

Seminar emphasizes current topics through readings and presentations by practitioners in earth and space sciences. Undergraduate level: Course may be repeated up to 3 credits. Graduate level: Course may be repeated up to 4 credits.

Repeatability: Repeatable for credit up to 3 times or 3 hours.

GEOL 6000 Comprehensive Exam (0-0-0)

Comprehensive geoscience examination taken upon completion of 24 credit hours. S/U grading.

Restriction(s):

Enrollment is limited to Graduate Level level students.
Enrollment limited to students in the College of Letters Sciences college.

GEOL 6005 Thesis Defense (0-0-0)

Department approval required. A satisfactory grade in the course indicates a successful oral defense of the master's thesis, the completion of edits and approval by the advisor or committee, and submission to the library. Degree candidates must be enrolled during the semester of their defense. S/U grading.

Restriction(s):

Enrollment is limited to Graduate Level level students.
Enrollment limited to students in the Department Prerequisite college.

GEOL 6097 Special Topics: Geological Resources and the Environment (3-0-3)

GOML course offered by Georgia Southern.

Repeatability: Repeatable for credit up to 1 times or 3 hours.

Restriction(s):

Enrollment limited to students in the MATCEI24 or MEDEDAT programs.
Enrollment is limited to Graduate Level level students.
Enrollment limited to students in a Master of Arts in Teaching, Master of Arts in Teaching-SEd or Master of Education degrees.

GEOL 6205 Current Research in the Geosciences (2-0-2)

An exploration of research opportunities available through the graduate program. Topics will be presented by geoscience faculty over the course of the semester. Course is restricted to students in MS Natural Sciences - Geosciences track.

Restriction(s):

Enrollment is limited to Graduate Level level students.
Enrollment limited to students in the College of Letters Sciences college.

GEOL 6705 Graduate Seminar (2-0-2)

Current research topic in the geological sciences at the instructor's discretion. Course may be repeated for credit if topics differ. S/U grading.

Repeatability: Repeatable for credit up to 2 times or 6 hours.

Restriction(s):

Enrollment limited to students major in Environmental Science.
Enrollment is limited to Graduate Level level students.

GEOL 6905 Thesis Research (0-0-(1-9))

Thesis research. S/U grading.

Repeatability: Repeatable for credit up to 99 times or 999 hours.

Restriction(s):

Enrollment is limited to Graduate Level level students.
Enrollment limited to students in a Master of Science degree.