

GEOLOGY (GEOL)

Courses

GEOL 1010. Topics In: First-Year Seminar. 3 Credits.

Intensive first-year seminar focused on specific themes and/or disciplinary perspectives. Emphasis on developing critical reading and writing skills, substantive revision, information literacy, and analytical thinking. First-year seminars are frequently organized to meet one of the disciplinary Catamount Core requirements. Topics vary by offering; periodic offering at intervals that may exceed four years. Catamount Core: N1, WIL1.

GEOL 1020. Topics In: LASP Writing. 3 Credits.

Intensive course in a broad disciplinary area (humanities, social sciences, arts, or natural sciences). Part of an integrated first-year experience in which students take 2-4 classes exploring aesthetic, humanistic, social, linguistic, environmental, or scientific issues. May repeat for credit with different content. Topics vary by offering; periodic offering at intervals that may exceed four years. Co-requisite: Enrollment in the appropriate Liberal Arts Scholars Program. Catamount Core: N1, WIL1.

GEOL 1025. Topics In: LASP Seminar. 4 Credits.

Intensive course in a broad disciplinary area (humanities, social sciences, arts, or natural sciences). Part of an integrated first-year experience in which students take 2-4 classes exploring aesthetic, humanistic, social, linguistic, environmental, or scientific issues. May repeat for credit with different content. Topics vary by offering; periodic offering at intervals that may exceed four years. Co-requisite: Enrollment in the appropriate Liberal Arts Scholars Program. Catamount Core: N2.

GEOL 1040. Interdisciplinary Earth. 3 Credits.

Introduces theory, practice, and real-world examples of advantages and challenges of interdisciplinary approaches. This includes an understanding of natural science principles, but also a critical interrogation of origins and issues related to the prevailing, often exclusive, culture in natural sciences. Drawing from examples in the geosciences and critical zone science, medicine, and engineering, students will be engaged in discussions on science, sustainability, data analyses, teamwork, and communication. Catamount Core: N1, QD, SU.

GEOL 1055. Topics in Intro to Geo. 3 Credits.

Exploration of geological processes and concepts. May be repeated for credit with different content. Topics vary by offering; periodic offering at intervals that may exceed four years. Catamount Core: N1.

GEOL 1100. Earth Through Time. 3 Credits.

Discover Earth's record of over 4.5 billion years of history, spanning the formation of the planet and its building blocks to the evolution of continents, oceans, and the atmosphere. Topics include how geologic processes link to the formation of life, mass extinctions, natural resources and changing climate, how geoscientists decode the record of Earth's stories preserved by sediments, rocks, and fossils, and how different technologies provide a deeper understanding of Earth's dynamic history. Catamount Core: N1.

GEOL 1400. Environmental Geology. 0 or 4 Credits.

Introduction to geologic processes and materials pertinent to environmental problems: ground water movement, supply, and contamination, waste disposal, flooding, subsidence, and landslides. Local field trips. Designed for intended Natural Science majors. Catamount Core: N2.

GEOL 1990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

GEOL 2105. Earth Materials. 3 Credits.

Exploration of the building blocks of the Earth (elements, minerals, and rocks) and their connection to the Earth's past, present, and possible sustainable future. No laboratory. Credit not awarded for both GEOL 2105 and GEOL 3105. Prerequisite: GEOL 1400 or Instructor permission. Catamount Core: N1, SU.

GEOL 2400. Topics in Env't & Surface Geo. 3 Credits.

Exploration of themes and concepts in environmental and surface geology. May repeat for credit with different content. Topics vary by offering; periodic offering at intervals that may exceed four years. Prerequisite: GEOL 1400.

GEOL 2405. Environmental Geochemistry. 3 Credits.

Application of many basic principles of chemistry to selected environmental problems in geosciences (e.g. acid mine drainage, carbon dynamics, weathering, and contaminant metal mobility). No laboratory. Credit not awarded for both GEOL 2405 and GEOL 3405. Prerequisite: A Catamount Core N1, N2, or MA course. Catamount Core: N1.

GEOL 2410. Geohealth. 3 Credits.

Exploration of the relationships between human health and geologic processes and materials, highlighting interfaces between the geosphere, hydrosphere, atmosphere, and biosphere. Examination of links between geologic processes and potential health hazards to which humans are exposed by air, food, water, or soil. Application of foundations of geologic and geochemical knowledge that affect health outcomes to understand impacts of natural and anthropogenic processes on public health and issues related to testing and regulation. Prerequisites: A Catamount Core N1 or N2 course, ENVS 1500, HSCI 1100, or HSOC 1700. Cross-listed with: ENVS 2630. Catamount Core: N1.

GEOL 2525. Geocomputing. 3 Credits.

Introduction to a variety of computing tools commonly used in sciences and geosciences in particular. Hands-on experience; real data are used to resolve specific problems. Prerequisite: A Catamount Core N1 or N2 course. Catamount Core: QD.

GEOL 2605. Mars, Moons & Asteroids. 3 Credits.

Space exploration is a relatively new human endeavor that has greatly improved our understanding of our own planet and solar system. For that reason, any human mission to the solar system will have geology as one of its primary goals. Dissecting the objectives, results, and conclusions of the most recent space missions to nearby Mars, Luna, and asteroids provides an opportunity to explore the geologic objects of the solar system to understand Earth processes. Prerequisite: A Catamount Core N1 or N2 course. Catamount Core: N1.

GEOL 2990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

GEOL 3105. Earth Materials w/lab. 0 or 4 Credits.

Exploration of the building blocks of the Earth (elements, minerals, and rocks) and their connection to the Earth's past, present, and possible sustainable future. With laboratory. Credit not awarded for both GEOL 3105 and GEOL 2105. Prerequisite: GEOL 1400 or Instructor permission. Catamount Core: N2, SU.

GEOL 3405. Environmental Geochem w/lab. 0 or 4 Credits.

Application of many basic principles of chemistry to selected environmental problems in geosciences (e.g. acid mine drainage, carbon dynamics, weathering, and contaminant metal mobility). With laboratory. Credit not awarded for both GEOL 3405 and GEOL 2405. Prerequisite: A Catamount Core N1, N2, or MA course. Catamount Core: N2, OC.

GEOL 3410. Geomorphology. 0 or 4 Credits.

Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental problems. Prerequisite: GEOL 1400 or Instructor permission.

GEOL 3515. Field Geology. 4 Credits.

Geological evolution of western Vermont as seen through actual field mapping in the Burlington area. Specifically designed for sophomores majoring or minoring in Geosciences or related sciences. Prerequisite: GEOL 1025, GEOL 1100, GEOL 1400, or GEOG 1200; a Catamount Core N1 or N2 course.

GEOL 3990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

GEOL 3991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

GEOL 3993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

GEOL 3995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

GEOL 4110. Rock Chronicles. 3 Credits.

Learn to reconstruct sagas of the solid Earth using a wide variety of evidence, often cryptic, preserved by rocks over the course of their fascinating tectonic histories. Learn to apply fundamental concepts of metamorphism and deformation to the discovery and interpretation of mineral assemblages and textures as clues to these histories via microscopy and assorted analytical techniques. Further explore methods by which absolute timing and rates of geologic processes can be quantified. Prerequisite: GEOL 2105 or GEOL 3105.

GEOL 4405. Geochemistry of Natural Waters. 3 Credits.

Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria. Credit not awarded for both GEOL 4405 and GEOL 5405. Prerequisite: A Catamount Core N1 or N2 course; a 2000-level course in the natural sciences. Catamount Core: N1, QD.

GEOL 4510. Geomaterial Analysis. 3 Credits.

Acquiring and mastering advanced knowledge and practical skills in the analysis and characterization of geological materials is fundamental to environmental investigations. Geomaterial is all inorganic material that constitutes the Earth layers. As such, virtually every research project in geosciences, engineering, environmental science, physical geography, archeology, etc., starts with a thorough characterization of geomaterials. Prerequisites: GEOL 2105, GEOL 2405, GEOL 3105, or GEOL 3405.

GEOL 4990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

GEOL 4994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

GEOL 4996. Honors. 1-6 Credits.

College honors thesis or other department/program honors, under the supervision of a faculty member. Offered at department discretion.