

EARTH SCIENCE (ESCI)

ESCI-1030 Earth 3 Credits

Survey of geology of Earth and its impact on the environment. Earth's structure and composition, earthquakes, plate tectonics, hydrologic cycle, weather, resources and energy alternatives, and current related issues. Intended for non-science majors. To fulfill laboratory science requirements, students should enroll in related laboratory course.

Lecture: 3 hours

Prerequisite(s): ENG-0980 Language Fundamentals I or appropriate score on English Placement Test.

OAN Approved: TMNS.

ESCI-103L Earth Laboratory 1 Credit

[This course is cross-listed as PSCI-103L. Credit can only be earned once for either course.] Intended for non-science majors. Exercises on rocks and minerals, soils, weather, plate tectonics, energy and may include other related earth science activities. Laboratory activities complement and enrich related lecture course.

Laboratory: 3 hours

Prerequisite(s): ESCI-1030 Survey of Earth or concurrent enrollment.

ESCI-1040 Weather Studies 3 Credits

An integrated science course that covers current facts, theories, and technological methods regarding the study of the weather and climate. Weather prediction and real-time weather data analyses are important facets of this course.

Lecture: 2 hours. Laboratory: 2 hours

Prerequisite(s): ENG-0990 Language Fundamentals II, or appropriate score on English Placement Test.

ESCI-1050 Introduction to Ocean Studies 3 Credits

Introduction to Ocean Studies will focus on the world's oceans, emphasizing both the physical and chemical properties, circulation, and interaction between the ocean and other components of the Earth system. This course is for general science majors and non-majors, and will expose the student to the world's oceans and the vital role in the earth system.

Lecture: 3 hours

Prerequisite(s): ENG-1010 College Composition I or concurrent enrollment; and MATH-0990 Math Literacy for College Students or concurrent enrollment, or MATH-0955 Beginning Algebra or concurrent enrollment; or appropriate score on Math Placement Test.

ESCI-1310 Physical Geography 3 Credits

Introductory study of physical elements of geography. Includes earth-sun relationships, maps, atmospheric components and interactions, elements and controls of weather and climate, water resources and their distribution, vegetation associations, animal associations, ecological relationships, soil types, landforms, and plate tectonics. World distribution, causal relationships and significance to man are stressed. To fulfill laboratory science requirements, students should also enroll in related laboratory course.

Lecture: 3 hours

Prerequisite(s): ENG-0980 Language Fundamentals I or appropriate score on English Placement Test.

OAN Approved: TMNS and OSS006 (Course 1 of 2. Both must be taken).

ESCI-131L Lab in Physical Geography 1 Credit

Laboratory studies include the scientific method, map interpretation and construction, remote sensing, energy transfers, weather components, climate classification, hydrology, pedology, ecology, plant and animal geography, and plate tectonics.

Laboratory: 3 hours

Prerequisite(s): ESCI-1310 Physical Geography or concurrent enrollment.

OAN Approved: TMNS and OSS006 (Course 2 of 2. Both must be taken).

ESCI-1410 Physical Geology 3 Credits

Topics include materials and structures of the earth; processes and agencies which change earth's crust. Mineral composition of rocks; work of gravity, water, winds, and glaciers as agents of erosion; volcanoes and earthquakes as forces which change earth's surface. To fulfill laboratory science requirements, students should also enroll in related laboratory course.

Lecture: 3 hours

Prerequisite(s): ENG-0980 Language Fundamentals I or appropriate score on English Placement Test.

OAN Approved: TMNS and OSC025 (Course 1 of 2; Both must be taken).

ESCI-141H Honors Physical Geology 3 Credits

Honors course in Physical Geology covers materials and structures of the Earth; processes and agencies by which the Earth's crust has been and is being changed; rocks and their mineral composition; the work of gravity, water, winds, and glaciers as agents of erosion; and volcanoes and earthquakes as forces which change the surface of the Earth. Emphasis on effects geological events and resources have had on human civilization, with a strong focus on inquiry-based learning as the basis of scholarly research. To fulfill laboratory science requirements, students should also enroll in Laboratory in Physical Geology.

Lecture: 3 hours

Prerequisite(s): Eligibility for ENG-101H Honors College Composition I.

OAN Approved: TMNS and OSC011 (course 1 of 2, both must be taken).

ESCI-141L Lab in Physical Geology

1 Credit

Laboratory studies include minerals, rocks, volcanoes, geologic dating, topographic maps and determination of depositional and erosional features, earthquake epicenter locations, folds and faults, interpretation of geologic maps, plate tectonic processes and boundaries, and field work to become familiar with local geology. Regularly scheduled field trips are integral part of this course.

Laboratory: 3 hours

Prerequisite(s): ESCI-1410 Physical Geology or concurrent enrollment; or ESCI-141H Honors Physical Geology or concurrent enrollment.

OAN Approved: TMNS and OSC025 (course 2 of 2, both must be taken)

ESCI-1510 Historical Geology

3 Credits

Historical geology focuses on the evolution of land forms and life-forms through geologic time. The course includes a study of evolutionary changes occurring in plant and animal life as documented by fossil remains and the interpretation of geologic forces by means of topographic and geologic maps. Topics include plate tectonics, relative and absolute dating, fossils and fossilization, rocks and their significance as indicators of the environmental past. Emphasis will be placed on North America, dealing with the growth of continents and mountain building. To fulfill the laboratory science requirement, students should also enroll in a Historical Geology laboratory course.

Lecture: 3 hours

Prerequisite(s): Eligibility for ENG-0980 Language Fundamentals I or appropriate score on English Placement Test; and ESCI-1410 Physical Geology or ESCI-1310 Physical Geography

OAN Approved: TMNS

ESCI-151L Lab in Historical Geology

1 Credit

Laboratory studies include mineral and rock identification, significance of rock type, relative and absolute dating, stratigraphy, fossilization, fossil identification and significance, evolutionary patterns, cladistics, geology and paleontology of major geologic time divisions, and field work. Field work and field trips are an integral part of this course.

Laboratory: 3 hours

Prerequisite(s): ESCI-1510 Historical Geology or concurrent enrollment.

OAN Approved: TMNS

ESCI-1610 Geology of the National Parks

3 Credits

Studies of each park will include reasons why each area was set apart as a park, its geologic history, its present lithology and topography, and influences of lithology and topography on climatic and biotic factors (and vice versa). Ecological and geologic problems that have arisen because of presence of humans in parks or in adjacent areas also considered. To fulfill laboratory science requirement, students should also enroll in related laboratory course.

Lecture: 3 hours

Prerequisite(s): ENG-0980 Language Fundamentals I, or appropriate score on English Placement Test..

OAN Approved: TMNS.

ESCI-161L Lab in Geology of the National Parks

1 Credit

Laboratory studies include use of topographic maps, aerial photos, remote sensing images, and geologic maps; volcanism and earthquakes, physiographic provinces; identification of igneous, sedimentary and metamorphic rocks and structures; studies of depositional and erosional features of streams, winds, glaciers, and waves; fossil identification; analyses of climatic and biological data; plate tectonics; investigations into ecological problems of many national parks. Field work required.

Laboratory: 3 hours

Prerequisite(s): ESCI-1610 Geology of the National Parks or concurrent enrollment.

OAN Approved: TMNS.

ESCI-1820 Independent Study/Research in Earth Science

1-3 Credits

Directed individual study. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

Lecture: 1-3 hours

Prerequisite(s): Departmental approval, and instructor approval, and ENG-0990 Language Fundamentals II or appropriate score on English Placement Test.

ESCI-182H Honors Independent Study in Earth Science

1-3 Credits

Honors-level directed individual study. Must meet criteria set forth in the Honors Course Checklist used to approve regular honors courses. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

Lecture: 1-3 hours

Prerequisite(s): Departmental approval and instructor approval, and ENG-0990 Language Fundamentals II or appropriate score on English Placement Test, and must have earned an A or B in at least 3 honors courses.

ESCI-282H Honors Independent Study in Earth Science

1-3 Credits

Advanced Honors-level directed individual study. Must meet criteria set forth in the Honors Course Checklist used to approve regular honors courses. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

Lecture: 1-3 hours

Prerequisite(s): Departmental approval and instructor approval, and ENG-0990 Language Fundamentals II or appropriate score on English Placement Test, and must have earned an A or B in at least 3 honors courses.