

2015-2016 Geology Course Descriptions

GEO 112N Physical Geology: How the Earth Works. An examination the natural processes that shape the earth's past, present and future and their impact on the residents of the planet. Course will also introduce the methods scientists use to study the Earth. Topics addressed include the formation of earth materials, natural hazards such as volcanoes and earthquakes, plate tectonics and mountain building, and earth history. There will be three hours of classroom study and one two hour lab each week. Students who complete GEO 112 cannot also receive credit for GEO 116. 4 Semester Hours.

GEO 116N Investigation Earth. A hands-on exploration of the dynamics that shape planet Earth and an introduction to methods scientists use to study the Earth's past, present, and predict its future. The course will examine the origin, evolution, and interaction of the Earth's lithosphere, hydrosphere and atmosphere and the impact these interactions have had on the Earth's history and on human habitation of the planet. Students who complete GEO 116 cannot also receive credit for GEO 112. Five hours of combined lecture and lab per week. 4 Semester Hours.

GEO 199 Special Topics See All-University 199 course description.

GEO 205 Weather and Climate. A study of the nature of the Earth's atmosphere, atmospheric circulation and energy, clouds and precipitation, frontal systems and other weather phenomena that affect our everyday lives. The relationship between weather and climate and global problems related to sustainable human existence will be considered. 4 Semester Hours.

GEO 210 Hydrology and Water Resources. A study of water properties, occurrence, distribution, and movement and their relationship with the environment within each phase of the hydrological cycle. The course also examines water quantity and quality issues, and water management policies. Prerequisite: BIO 141 or ENV 190 or GEO 112 or GEO 116 or consent of the instructor. Three class hours and one three-hour laboratory per week. 4 Semester Hours.

GEO 212 Historical Geology. An investigation of the physical and biologic processes that shape the earth and how those processes are recorded in the rock record. The geologic history of North America will be examined based on the evidence revealed by the rocks and fossils of the continent. Prerequisite: GEO 112 or GEO 116 or instructor's permission. Three class hours and one two hour laboratory session per week. 4 Semester Hours.

GEO 220 History of Life. A study of the basic principles used by paleobiologists to understand the history of life on Earth, and an application of those principles through a survey of major events and trends in the evolution and diversification of life. Offered in alternate years. Prerequisites: open to sophomores, juniors and seniors. 4 Semester Hours.

GEO 270 Regional Geology . An examination of the geology, geomorphology and geologic history of selected regions of North America. Emphasis will be placed on the use of basic geologic principles in the interpretation of geologic features and landforms. Prerequisites: GEO 112 or GEO 116, GEO 212 or permission of the instructor. Four class hours per week. 4 Semester Hours.

GEO 299 Special Topics See All-University 299 course description.

GEO 301 Earth Materials. An introduction to the materials that make up the Earth and the tools used to study these materials. Emphasis is placed on the identification, classification and interpretation of the geological significance of minerals. The course introduces crystallography, physical mineralogy, crystal chemistry, optical mineralogy, x-ray diffraction, and hand sample petrography. The origin and environmental impacts of mineral resources are also studied. Prerequisite: GEO 112 or GEO 116. Three class hours and one two hour laboratory session per week. Offered in alternate years. 4 Semester Hours.

GEO 302 Igneous and Metamorphic Petrology. A study of the igneous and metamorphic rocks and their significance to the origin and evolution of the earth's crust. Emphasis placed on the identification, physical and chemical classification, petrogenesis, and tectonic significance of igneous and metamorphic rocks. Prerequisite: GEO 301. Three class hours and one two hour laboratory session per week. Offered in alternate years. 4 Semester Hours.

GEO 320 Paleontology. An introduction to classification and identification of fossils; and the evolution and distribution of the major invertebrate phyla through geologic time. Prerequisites: GEO 112 or GEO 116; GEO 212, or permission of the instructor. Three class hours and one two hour laboratory session per week. 4 Semester Hours.

GEO 325 Sedimentation and Stratigraphy . An examination of the components of sedimentary deposits, processes of sediment deposition in different environments and sedimentary rock formation. The sedimentary rocks are placed in a time-stratigraphic perspective through correlation and basin analysis. Prerequisites: GEO 112 or GEO 116, GEO 212. GEO 301 is recommended but not required. Three class hours and one two hour laboratory session per week. Offered in alternate years. 4 Semester Hours.

GEO 330 Structural Geology. A study of deformation in the Earth's crust at all scales. Emphasis on recognition and analysis of structural features and interpretation of their tectonic significance. Prerequisites: GEO 112 or GEO 116, GEO 212, MTH 140 or equivalent. Three class hours and one two hour laboratory session per week. Offered in alternate years. 4 Semester Hours.

GEO 381-384 Geology Seminar. A review of classic papers and current publications relevant to the broad spectrum of earth sciences. Each semester students will prepare a written report and give a presentation on a subject of their own choosing that is of current geological interest. Normally taken in junior and senior years. Each student is responsible for giving one seminar presentation each semester. Regular attendance at scheduled seminars is also required. Prerequisite: Registration only by permission of the instructor. 0.5 Semester Hours. each semester

GEO 385 Directed Studies in Earth Sciences. Studies relevant to a topic selected by the student in conference with the instructor. The study may take the form of library research, discussion, or field or laboratory investigation under close supervision of the instructor. The study may represent an extension of previous course work. Open to advanced students majoring in geology. Prerequisite: Registration only by permission of the instructor. May be taken more than one semester. 1- 4 Semester Hours.

GEO 399 Special Topics. See All-University 399 course description.

GEO 410 Research. Independent study and research in earth science. May be taken on an interdepartmental basis with permission of the departments involved. Research projects are determined by the students interest. A formal presentation of the results of the research is required. Open to advanced students majoring in geology who have demonstrated a desire and an aptitude for independent research. Prerequisite: Registration only by permission of the instructor. May be taken more than one semester. 1 - 4 Semester Hours.

GEO 425 Senior Culminating Experience. A two-semester course designed to fulfill the University requirements for a Senior Culminating Experience. This course is required of all geology majors. Students will develop and conduct an independent scientific research project and present the results as a written report and an oral presentation. A grade of "In Progress" will be assigned at the end of the first semester. The final grade will be entered for both semesters at the end of the second semester. Prerequisites: Permission of the instructor. 2 Semester Hours each semester for a total of 4 Hrs.

GEO 494 Honors Thesis/Project. A research/project course designed to meet the needs of the individual student seeking honors in the major at graduation. Prerequisites: junior or senior standing, and approval of the instructor, the department chair and the Honors Review Board. Credit variable, 4-6 Semester Hours.