GEOLOGY

College of Natural Science

200. The Geology of Man's Environment
Fall, Winter, Spring, Summer. 3(3-0) Not open to Geology majors. Credit will be given in only one of the following: GLG 200, GLG 201, GLG 306.
Man and his geologic environment: earthquakes, volcanoes, landslides, subsidence, flooding, coastal erosion, hydrology and human use, waste disposal, geologic aspects of environmental health, resources and energy, environmental law.

200L. Laboratory—Geology of Man's Environment
Fall, Winter, Spring, Summer. 1(0-3) GLG 200 or concurrently. Laboratory study of geologic processes associated with environmental hazards. Emphasis placed on land-use planning, applying geologic criteria to evaluate land potentials.

201. Earth Processes
Fall, Winter, Spring. 4(4-2) Credit will be given for only one of the following: GLG 200, GLG 201, GLG 306. Physical processes concerning evolution of Earth and its environments. Conservation and interaction of energy and matter through time. Laboratory stresses interpretation of process through studies of geologic data.

202. Evolution of the Earth
Fall, Winter, Spring. 4(4-2) GLG 200; or GLG 201; or GLG 306. Integration of physical, chemical and biological processes from which man's present environment has evolved; problems and controversies in the development of ideas of geologic and organic evolution.

205. Oceanology—The Marine Environment and Man
Fall. 3(3-0) Physical oceanography, including origin, hydrologic, chemical, geological properties; and environmental quality of the oceans. Man-sea interactions are emphasized including resource utilization and pollution.

211. Minerals, Rocks and Fossils
Spring 3(2-3) Not open to majors. Description, occurrence and identification of minerals, rocks, fossils, and additional features of especial significance to general science teachers and other earth science interest groups.

282. Energy Resources of the Earth
Winter. 3(3-0) World energy resources of petroleum, coal, and atomic fuel. Social, political, economic and environmental problems of fuels.

300. Solar System Geology
Winter. 4(4-0) AST 119 or AST 217 or AST 229; GLG 200 or GLG 201. The origin, relationships, make-up and features of the bodies in the solar system emphasizing recent space exploration results and developing theories.

302. Vertebrate Life of the Past
Fall. 3(3-0) One course in a physical or biological science or Interdepartmental with the Department of Zoology. Fossil vertebrates from fish to man.

304. Geology of Michigan
Fall. 3(3-0) GLG 200 or GLG 201 and/or GLG 202; or approval of department. A historical accounting of the physical, historical and economic geology of Michigan and its environs; a course designed for students seeking an overall picture of the rather unique Michigan geological environment.

306. Engineering Geology
Fall, Spring. 3(3-2) Credit will be given for only one of the following: GLG 200, GLG 201, GLG 306. Sophomore Engineering students. Fundamental principles of geology as applied to civil engineering practice. Minerals and rocks, aerial photographs, topographic and areal geologic maps and geologic cross sections studied in laboratory. Source of geologic literature and maps.

307. Geology Central Appalachians
Winter. 4(0-2) GLG 200, or GLG 201, or GLG 202, or concurrently. General geology of the Central Appalachians. A preparatory course for GLG 308. Field excursions—Central Appalachians during spring vacation.

308. Field Excursion—Central Appalachians
Spring. 2 or 3 credits. GLG 307. Training in stratigraphic, sedimentological, palynologic, and structural principles as applied to field methods.

311. Mineralogy
Fall. 5(4-0) One term of chemistry. Introduction to crystal systems and forms exhibited by minerals, followed by study of composition, occurrence, classification, and identification of nonmetallic minerals.

312. Mineralogy
Winter. 4(3-4) GLG 321. Economic and chemical importance of minerals; mineralogy of nonmetallics; practical crystallography; geochemistry of minerals.

335. Fossil Plants, Their History and Palaeoecology
Spring. 3(3-0) One course in geology or botany or biology or approval of department. Interdepartmental with the Department of Botany and Plant Pathology. History of plants through geologic time: their form and evolution; how and where found, identified and reconstructed; their use in determining ancient geographic patterns, paleoenvironments, paleoclimates and community structure. Field trip.

337. The Fossil Record of Organic Evolution

344. Field Geology—Summer Camp
The text is a list of courses offered in a geology program. Each course is described with its prerequisites, credit hours, and a brief description of the course content. The courses cover topics such as Introduction to Field Techniques, Methods of Geological Mapping, Introduction to Meteorology, Hydrogeology, and many others. The descriptions provide a general overview of the course content, including the examination of geological maps, the study of field data, and the application of geological principles to real-world scenarios.
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<tr>
<th>Topics and Problems</th>
<th>Credits</th>
<th>Notes</th>
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<tr>
<td>Special Problems in Hydrogeology, Geochmistry, Geomorphology, and Glacial Geology, Mineralogy</td>
<td>830</td>
<td>Spring, 3 credits. May reenroll for a maximum of 6 credits. Approval of department. Related problems in geophysics, such as tectonophysics, terrestrial heat flow, processing and analysis of geophysical data, geomagnetism, paleomagnetism, high-pressure geophysics.</td>
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<tr>
<td>Exploratory Seismology</td>
<td>872</td>
<td>Fall of odd-numbered years. 3 credits. Theory and technique of field seismic exploration methods. An associated geophysical survey will be conducted and a report prepared.</td>
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<tr>
<td>Exploratory Paleontology</td>
<td>834</td>
<td>Winter of odd-numbered years. 3 credits. May reenroll for a maximum of 6 credits. Approval of department. Related problems in geophysics, such as tectonophysics, terrestrial heat flow, processing and analysis of geophysical data, geomagnetism, paleomagnetism, high-pressure geophysics.</td>
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<tr>
<td>844. Mesozoic and Cenozoic Stratigraphy</td>
<td>864</td>
<td>Winter of odd-numbered years. 3 credits. May reenroll for a maximum of 6 credits. Approval of department. Related problems in geophysics, such as tectonophysics, terrestrial heat flow, processing and analysis of geophysical data, geomagnetism, paleomagnetism, high-pressure geophysics.</td>
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<tr>
<td>Geophysical Exploration II</td>
<td>875</td>
<td>Winter of even-numbered years. 3 credits. May reenroll for a maximum of 6 credits. Approval of department. Related problems in geophysics, such as tectonophysics, terrestrial heat flow, processing and analysis of geophysical data, geomagnetism, paleomagnetism, high-pressure geophysics.</td>
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<tr>
<td>Geophysical Exploration I</td>
<td>845</td>
<td>Winter of even-numbered years. 3 credits. May reenroll for a maximum of 6 credits. Approval of department. Related problems in geophysics, such as tectonophysics, terrestrial heat flow, processing and analysis of geophysical data, geomagnetism, paleomagnetism, high-pressure geophysics.</td>
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<tr>
<td>Regional Petroleum Geology</td>
<td>884</td>
<td>Spring of odd-numbered years. 3 credits. May reenroll for a maximum of 6 credits. Approval of department. Related problems in geophysics, such as tectonophysics, terrestrial heat flow, processing and analysis of geophysical data, geomagnetism, paleomagnetism, high-pressure geophysics.</td>
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891. **Advanced Sedimentology**  
*(GRM 495)*  
Spring, 3(3-0).  
Study of analysis of sediments.  
Graduate credit.  

892. **Aqueous Geochemistry**  
*(GRM 495)*  
Spring, 3(3-0) or a course in physical chemistry or approval of department.  
Graduate credit.  

893. **Topics in Geochemistry**  
*C. Analytical Geochemistry*  
Fall of even-numbered years, 1 to 3 credits. May be repeated for a maximum of 12 credits.  
Instrumental techniques for the analysis of geological materials. Topics on application of X-ray diffraction, X-ray fluorescence, neutron activation analysis, and atomic absorption spectroscopy. Recently developed techniques in geochemistry will be discussed.  
Graduate credit.  

894. **Exploration Geochemistry**  
*Spring of even-numbered years, 3(3-0)*  
Graduate credit.  
Application of principles of geochemistry in the search for ore deposits and hydrocarbon accumulations.  
Graduate credit.  

895. **Master's Thesis Research**  
Fall, Winter, Spring, Summer.  
Variable credit. Approval of department.  

896. **Special Problems**  
Fall, Winter, Spring, Summer.  
Variable credit. Approval of department.  
Special problems in hydrology, geomorphology and glacial geology, mineralogy and crystallography, petrology, paleontology, structural geology and petroleum geology, seismology, geochemistry, geophysics, economic geology, petroleum geology, sedimentation, and geochemistry.  
Graduate credit.  

897. **Doctoral Dissertation Research**  
Fall, Winter, Spring, Summer.  
Variable credit. Approval of department.  

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**GERMAN AND RUSSIAN**

**College of Arts and Letters**

Students who have had high school work in the foreign language in which they wish to continue their studies must take a placement examination in that language. Placement in the appropriate course is determined by the results of this examination. University credit is not given for courses waived by performance on the placement examination.

**German and Russian Courses**

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<th>Course Code</th>
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| 403. | Folklore  
*Spring (3-0)*  
Folk heritage of peoples as revealed in their legends, superstitions, ballads, folksongs, hero tales, sayings, customs, and beliefs. Historical development of traditional lore as a reflection of social attitudes and the source for national mythologies.  
Graduate credit.  

**418. Scandinavian Contributions to Literary Tradition**  
*Winter (3-0) Approval of department.*  
Interdepartmental with the departments of English and Romance and Classical Languages. Development and influence of the ideas, forms and motifs of the Scandinavian literatures in the literatures of the world.  
Graduate credit.  

**498. Topics in Comparative Literature**  
*Fall, Winter, Spring (3-0) or (4-0) May be repeated for a maximum of 12 credits if different topics are offered.*  
Interdepartmental with the departments of English and Romance and Classical Languages. Administered by the Department of Romance and Classical Languages.  
Varying topics on relationships among writers, themes, genres, movements, and periods in different national literatures, and between literature and other arts.  
Graduate credit.  

**825. Comparative Literature: Studies in Theme and Idea**  
*Fall (3-0) May be repeated for a maximum of 9 credits.*  
Interdepartmental with the departments of Romance and Classical Languages, and English. Administered by the Department of Romance and Classical Languages.  
Myth, archetypes, "Topoi," significant ideas and intellectual currents in different periods and cultural traditions.  
Graduate credit.  

**856. Comparative Literature: Literature and Other Disciplines**  
*Winter (3-0) May be repeated for a maximum of 9 credits.*  
Interdepartmental with the departments of Romance and Classical Languages, and English. Administered by the Department of Romance and Classical Languages.  
Relations between literature and the sciences and other arts; social, historical, psychological, philosophical bases of literary study.  
Graduate credit.  

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**101. Elementary German**  
*Fall, Winter, Spring, Summer (4-1) German language, civilization, and culture. Development of language skills in contemporary German. Independent practice in the language laboratory.*  
Graduate credit.  

**102. Elementary German**  
*Fall, Winter, Spring, Summer (4-1) GRM 101.*  
Continuation of GRM 101.  

**103. Elementary German**  
*Fall, Winter, Spring, Summer (4-1) GRM 102.*  
Continuation of GRM 102.  

**105. Intensive Elementary German**  
*Winter, Spring (8-6) GRM 101 with 3.0 or better or approval of department. May not receive credit for both GRM 105 and GRM 102, GRM 103.*  
Combination of GRM 102, GRM 103 in one term.  

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**111. German for Travelers**  
*Spring (3-0) Not applicable to major or minor requirements.*  
Essential German for travelers: basic grammar, vocabulary and useful phrases. Introduction to German culture and life through lectures, audiovisual aids and reading.  

**201. Intermediate German**  
*Fall, Winter, Spring, Summer (4-3) GRM 103.*  
Systematic review of grammar, oral practice, intensive and extensive reading of modern texts. This course or equivalent is required of majors and those planning to take advanced work in German.  

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**Earth Science**

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<th>Course Code</th>
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</table>
| 445. | Field Studies  
*Fall, Winter, Spring, Summer (1 to 9 credits).* May be repeated for a maximum of 15 credits. Approval of department.  
Experience and techniques in field investigation of the near surface layers of the earth.  

| 446. | Laboratory Investigations  
Fall, Winter, Spring, Summer (1 to 6 credits). May be repeated for a maximum of 15 credits.  
Independent study in topics related to earth science education.  

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**A-98**