

GLY 2000 Earth and Environmental Systems NS (3) AS GLY

May substitute for GLY 2010 for geology majors. This course examines the geology of the earth and the environment, using an earth systems approach that looks at interactions between the lithosphere, hydrosphere, atmosphere, and biosphere. Students will learn general principles of geology, travel world-wide on the internet, and participate in discussions on topics ranging from the scientific method to the latest geologic discoveries. Open University course; taught via internet and TV. Open University course; taught via internet and TV.

GLY 2010 Dynamic Earth: Introduction to Physical Geology NS (3) AS GLY

Required for Geology majors; open to non-majors. Study of minerals, rocks, and dynamic processes of the earth. Introduction to the origin of earth's materials, landforms, and structures.

GLY 2010L Dynamic Earth Laboratory (1) AS GLY PR: GLY

2010 or concurrent registration. Required for Geology majors; open to non-majors. Laboratory study of earth materials, landforms, geologic structures, topographic and geologic maps. Lec-lab-field trips.

GLY 2015L Essentials of Geology Laboratory (1) AS GLY

Fundamental concepts and skills of modern geology, including rock and mineral identification, analysis of geologic maps, field analysis, and applications of computers in Geology. Required field trip.

GLY 2030 Hazards of the Earth's Surface: Environmental Geology NS (3) AS GLY

May substitute for GLY 2010 for geology majors. A first course in geology emphasizing environmental aspects of the earth's crust, such as earthquakes, depletion of the earth's resources, water-supply problems, and geologic aspects of land use and planning.

GLY 2040 Origins: From the Big Bang to the Ice Age NS (3) AS GLY

The history of the cosmos, origin of the universe, galaxies, the solar system, and earth, evolution of life, great extinction's including the dinosaurs, evolution of the primates, and the environmental future of the planet. (For both non-

science and science majors.)

GLY 2050 Science, Earth and Life NS (3) AS GLY May substitute for GLY 2010 for geology majors. The nature, history and philosophy of science intended primarily for non-science majors. Consideration of science as a way of knowing through examples taken primarily from historical geology and biology (e.g., extinction of the dinosaurs, continental drift, evolution) but also from physics and astronomy. Consideration of social relevance of science.

GLY 2100 History of the Earth and Life NS (3) AS GLY PR: A course in geology. Required for Geology majors; open to non-majors. Study of the physical and biological history of the earth including evolution of the major groups of organisms, plate tectonics, and interpretation of ancient environments.

GLY 2100L Earth History Laboratory (1) AS GLY

Laboratory study of the history of the earth and life. Required for Geology majors; open to non-majors.

GLY 2930 Selected Topics in Geology (1-3) AS GLY Does not count toward the geology major. Topical courses in geology of general interest.

GLY 3311C The Solid Earth: Petrology and Geochemistry (4) AS GLY Igneous and metamorphic rocks of modern and ancient tectonic environments. Rock-forming processes at plate margins and intraplate sites. Essentials of hand specimen and microscopic mineralogy. Required field trip. Lec-lab. May not be repeated for credit.

GLY 3402C The Solid Earth: Plate Tectonics and Earth Structure (4) AS GLY PR: 4 hrs. introductory geology including GLY 2015L; MAC 2312 or equivalent; PHY 2048. Plate tectonic theory and its implication re: the formation of structural features on outcrop and regional scales. Field and geophysical tools for structural analysis. Required field trip. Lec-Lab.

GLY 3552C Sedimentary Record 1: Sedimentary Processes and Petrology (4) AS GLY PR: GLY 2015L, CHM 2045, MAC 2281. CR: GLY 3311C. A lecture and laboratory class that

discusses sedimentary processes, formation and classification of sedimentary rock, and the sedimentary rock record. Examination of the rock record to solve problems in sedimentary geology.

GLY 3610C Introduction to Invertebrate Paleontology (4)

AS GLY PR: GLY 2100. BSC 2010 or equivalent strongly encouraged as background. Lectures cover principles and applications of paleontology, including biostratigraphy, taphonomy, paleoecology, and micro- and macroevolutionary patterns and processes. Labs survey the invertebrate phyla comprising the bulk of the fossil record.

GLY 3720C The Fluid Earth (4) AS GLY PR: GLY 2015L; MAC 2311 and MAC 2312 or equivalent; CHM 2045 and CHM 2046; PHY 2048 and PHY 2048L. Physical, chemical and biological processes affecting fluids of the lithosphere, oceans and atmosphere. Water as a geologic medium and global entity. A systems approach. Not available as S/U for geology majors; S/U available for others.

GLY 3850 Geology For Engineers (3) AS GLY PR: Junior standing in College of Engineering or CI. No credit toward the geology major, or for those with credit for GLY 2010. An examination of geologic materials and processes designed for engineering students; classification and properties of earth materials, surface processes, site investigation techniques, applications of geology to the solution of engineering problems.

GLY 4045 Moons, Planets, and Meteors: An Introduction to Planetary Science XMW (3) AS GLY PR: Junior standing.

Solar System exploration, from Aristotle to NASA. Modern views on the origins of meteorites, the Moon, Mars, Venus, and other planetary bodies, and the methods of planetary study. Meteor impacts, their effects, future hazard. Space science as a tool in the study of the Earth. Field trips, lectures, Internet exercises.

GLY 4053 Theories and Arguments about the Earth MW (3)

AS GLY PR: 2000 level geology course. History of thinking about the Earth: context - geologic controversies; emphasis - geologic reasoning.

GLY 4104C Sedimentary Record 3: Paleontology and Earth

Evolution (4) AS GLY PR: GLY 2015L, GLY 3552C, BSC 2010. The study of "deep time", including how it is measured, how it is correlated over the Earth's surface, and how important physical, biologic, and chemical geologic processes have varied with time. Lec.-Lab.

GLY 4554C Sedimentary Record 2: The Earth's Surface (4) AS GLY PR: At least one course in Geology with lab. Principles of weathering, erosion, production, and transport of sediment on the earth's surface, and the resulting geomorphology. Modern sedimentary environments and the process-response systems that govern them. Course is open to anyone with at least one course in geology with lab. Course is not available on an S/U basis for geology majors; it is for other majors.

GLY 4734 Beaches and Coastal Environments MW (3) AS GLY A comprehensive introduction to the nature of all coastal environments including beaches, dunes, tidal inlets, estuaries, reefs, and river deltas. Emphasis will be on the natural state of these environments and how human activities have and will impact them. Consideration of coastal management policies involving economics, ethics, policy, and environmental law.

GLY 4780 Geological Field Studies (1-3) AS GLY PR: 1 geology course. Lectures and field trip to study modern geologic systems and/or geologic origins of specific regions. Mapping and field description techniques introduced. Topic/destination of trip varies. Trip requires camping and vigorous physical activity. Lec. Field trip.

GLY 4805 Geology and Development of Modern Africa MW (3) AS GLY An in-depth look at how geology has affected the politics, history and culture of Africa. Units include the Nile and hydropolitics, deserts and climate, rifting and hominid evolution, and mining and politics.

GLY 4822C Fluid Earth 2: Hydrogeology (4) AS GLY PR: GLY 2015L, GLY 3720C, PHY 2048, MAC 2281. CR: MAC 2282. Ground water flow systems, ground water geology, introduction to numerical and analytical models of ground water flow. Lec.-lab.-field trips.

GLY 4866 Computational Geology (3) AS GLY PR: One semester of calculus and physics. Geologic problems and problem-solving from a mathematical perspective. The intersection of geology and math. Calculations and error analysis. Not available as S/U for geology majors; S/U available for others.

GLY 4905 Independent Study (1-3) AS GLY PR: CI. S/U only. Specialized independent study determined by the student's needs and interests.

GLY 4915 Undergraduate Research (1-3) AS GLY PR: Senior or advanced junior standing and written permission of department prior to registration. S/U only. Individual experimental investigations with faculty supervision.

GLY 4920 Geology Colloquium (1) AS GLY PR: Senior standing in Geology. S/U only. Weekly topical lectures by faculty, graduate students and invited speakers.

GLY 4921 Geocommunications (3) AS GLY PR: Twelve (12) or more hours upper level geology courses. A course in communicating within the disciplines of the earth sciences. Emphasis will be on: writing for publication and technical reports, preparation and presentation of posters, and preparation and presentation of oral papers in earth sciences. Course is open to anyone majoring in geology, geography, anthropology or environmental science and policy. Course is not available on a S/U basis for geology majors.

GLY 4930 Selected Topics in Geology (1-4) AS GLY Each topic is a course under the direction of a faculty member with the content depending on the interests of the students and faculty involved. All areas of geology included.

GLY 4946L Practical and Applied Geology: Teaching Experience (1) AS GLY PR: Junior standing, declared Geology major, and at least 12 credit hours of Geology courses, or CI. CR: Enrollment in other Practical/Applied sections. Completion of Geology supporting course sequence highly recommended. Hands-on course designed to give students experience in teaching geology. Topics vary widely, with several different offerings each semester. May be repeated for credit.

GLY 4947L Practical and Applied Geology: Laboratory Experience (1) AS GLY PR: Junior standing, declared Geology major, and at least 12 credit hours of Geology courses, or CI. CR: Enrollment in other Practical/Applied sections. Completion of Geology supporting course sequence highly recommended. Hands-on course designed to teach the basic laboratory skills of a practicing geologist. Topics vary widely, with several different offerings each semester. May be repeated for credit.

GLY 4948L Practical and Applied Geology: Field Experience (1) AS GLY PR: Junior standing, declared Geology major, and at least 12 credit hours of Geology courses, or CI. CR: Enrollment in other Practical/Applied sections. Completion of Geology supporting course sequence highly recommended. Hands-on course designed to teach the basic skills of a practicing field geologist. Topics vary widely, with several different offerings each semester. May be repeated for credit.

GLY 4949L Practical and Applied Geology: Computational Experience (1) AS GLY PR: Junior standing, declared Geology major, and at least 12 credit hours of Geology courses, or CI. CR: Enrollment in other Practical/Applied sections. Completion of Geology supporting course sequence highly recommended. Hands-on course designed to teach the basic computational skills of a practicing geologist. Topics vary widely, with several different offerings each semester. May be repeated for credit.

GLY 4970 Undergraduate Honors Thesis (3) AS GLY Open to seniors admitted to the Geology undergraduate honors program. Students will complete an independent research project under supervision of a faculty member, and present results in a senior thesis and a public presentation.

GLY 5752 Geological Field Excursion (2) AS GLY PR: Senior standing in geology or CI. Lectures and 2-3 week field excursion to study regional geology, structure and lithogenesis of geologically complex terrain. Mapping and outcrop description techniques are emphasized. Destination of trip varies. Trip requires camping and vigorous physical activity. Lec.-field trip.

GLY 5865 Statistical Models in Geology (3) AS GLY PR:

STA 2023 or equivalent or CI. Application of statistical methods to geological problems. Emphasis on sampling plans, nature of geologic distributions, and application of analyses of variance to solving geological problems. Lec.

GLY 5932 Selected Topics in Geology (1-4) AS GLY PR: Senior or advanced junior standing. Each topic is a course under the direction of a faculty member. All areas of geology included.