EARTH SCIENCE (GS)

GS-101 Physical Geography
LASC Categories: NSP
Geographic principles of location; characteristics of landforms, soil, climate, minerals, water, flora, and fauna. [Formerly GE101.]
Fall and Spring and every year. 3 Credits

GS-110 Meteorology
LASC Categories: NSP, QAC
Weather elements, frontal storms, air mass characteristics, winds, temperature, precipitation, and pressure patterns throughout the world; weather instruments, forecasting.
Every year. 3 Credits

GS-140 Physical Geology
LASC Categories: LAB, NSP, QAC
Introduction to geological science: rocks and minerals, internal and external geologic processes, topographic map and air photo analysis, local field study. Three hours lecture and two hours laboratory per week.
Fall and Spring and every year. 4 Credits

GS-150 Humans and the Cold Regions
LASC Categories: NSP
Winter intersession. Examines earth's cold regions, including physical geography, cryosphere's role in earth systems, human adaptations. Includes outdoor activity.
Fall and Spring and every year. 3 Credits

GS-165 Geographic Information Systems I
LASC Categories: NSP, NLL
Introduction to the use of geospatial technologies including geographic information systems and GPS.
Every year. 4 Credits

GS-193 First Year Seminar in Geography
LASC Categories: FYS
Introductory level course covering topics of special interest to first-year students. Offered only as a First-Year Seminar.
Every year. 3 Credits

GS-195 Special Topics
Introductory course to be offered on a trial basis. Topic to be announced in advance.
Every 2-3 years. 1-6 Credits

GS-210 Geomorphology
LASC Categories: NLL, QAC
Prerequisites: GS-101 or GS-140 and an accuplacer score of 3 or one college level Math course.
The study of landforms and the processes that form them. Labs focus on interpretation of maps and aerial photographs. Three hour lecture and two hour laboratory.
Every year. 4 Credits

GS-218 Introduction to Remote Sensing
LASC Categories: NSP
Prerequisites: GS-101 or GS-140 or NS-150 or EV-150 or BI-101 or BI-140
Introduction to the use and analysis of remotely sensed images such as aerial photographs and satellite imagery.
Every year. 3 Credits

GS-225 Oceanography
LASC Categories: QAC
Prerequisites: GS-101 or GS-140 or GS-110 or NS-150
The principles of physical, chemical, biological, and geological oceanography.
Spring only and every year. 3 Credits

GS-230 Biogeography
Prerequisites: GS-101 or GS-110 or BI-101 or BI-140
The distribution patterns of plants and animals, processes affecting this distribution, and how these patterns change in space and time.
Every 2-3 years. 3 Credits

GS-235 Contemporary Climate Change
Prerequisites: GS-101 or GS-110 or NS-150 or CH-106.
The global climate system, factors influencing climate, recent climate change and the role of human activity.
Every 2-3 years. 3 Credits

GS-240 Coastal Environments
Prerequisites: GS-101 or GS-140
Summer session course examining the physical geography of coastal environments including human impacts. Includes field trips.
Every year. 3 Credits

GS-245 Planetary Geology
Prerequisites: GS-140 or PY-101
Solar system formation and evolution with emphasis on planetary interiors and surface features.
3 Credits

GS-250 Hydrology
Prerequisites: GS-101 or GS-140 or GS-110 or NS-150
Hydrologic processes, their estimation and measurement. Includes precipitation, evaporation, runoff, groundwater and water resources management.
Other or on demand. 3 Credits

GS-260 Introduction to Soil Science
Prerequisites: GS-101 or GS-140
The study of the formation, processes, classification and composition of soils with emphasis on environmental applications, including watershed delineation.
Every year. 3 Credits

GS-270 The Sedimentary Record
LASC Categories: NLL
Prerequisites: GS-140 and GS-101 or GS-110
Theoretical, laboratory, and field investigations of modern sedimentary processes, depositional environments, the sedimentary record of earth history, principals of stratigraphy. 3 hours lecture and 3 hours lab.
Every 2-3 years. 4 Credits

GS-299 Special Topics
Intermediate level course to be offered on a trial basis. Topic to be announced in advance.
1-6 Credits

GS-318 Geographic Information Systems II
Prerequisites: GS-165
Advanced production of digital choropleth maps on PCs using a GIS vector oriented software.
Fall and Spring and every year. 3 Credits
GS-328 Digital Landscape Analysis
Prerequisites: GS 165 and one 200 level GS course.
Computer based methods of representing, storing and analyzing landscape features. Explores technologies such as LiDAR and Unmanned Aerial Vehicles for gathering landscape data and the use of geospatial tools to analyze and represent landscape features. 3 hours of lecture and 2 hours of lab. Alternating and every year. 4 Credits

GS-335 Hydrogeology
Prerequisites: GS-140 or GS-250 and an accuplacer code of 3, or a college level math course.
Underground water and its movement. Aquifer identification and test; wells, contamination and remediation, ground water as a geologic agent. Fall only and other or on demand. 3 Credits

GS-338 Atmospheric Sciences
Prerequisites: # GS-101 # Take CH-120 or CH-112;
Atmospheric Science introduces students to the physics and chemistry of the atmosphere, and examines the science behind current issues such as global climate change, air pollution, and reductions in stratospheric ozone. Atmospheric physics includes both weather (clouds, rain, winds) and climate (weather averaged over longer timescales, as well as trends in climate over time). Atmospheric chemistry investigates processes controlling the chemical composition of the atmosphere, including related processes in the and biosphere, as well as anthropogenic pollution (smog, stratospheric ozone loss, etc.)
Every 2-3 years. 3 Credits

GS-340 Special Topics: Advanced Earth Science
Advanced course to be offered on a trial basis. Topic to be announced in advance.
Other or on demand. 1-6 Credits

GS-348 Fundamentals of Earth Data Analytics
LASC Categories: NSP, QR, QAC
Prerequisites: # GS-101 # Take 1 course; From Subjects GS; From Levels 200;
The theory and practice of data analytics using remote sensing and in-situ earth observations, and communicating the science.
Fall only and every year. 4 Credits

GS-365 Climate Change Over Earth History
LASC Categories: WAC
Prerequisites: EN-102 and either GS-140 or GS-235.
A record of climate change on Earth; methods used to reconstruct past climates; relevance of past changes to the current climate.
Every 2-3 years. 3 Credits

GS-370 Lakes & Environmental Change
LASC Categories: WAC, NLL
Prerequisites: GS-140 Take one earth science course at the 200-level or above.
Modern physical, biogeochemical, and sedimentary processes in lakes. Lake sediments as archives of past climate and environmental change. Includes fieldwork.
4 Credits

GS-400 Senior Seminar
LASC Categories: CAP
Prerequisites: GE-102 GS-101 GS-140 GS-216 and GE-212 or GE-315 and senior standing
Capstone course for geography majors. Students prepare a comprehensive term paper and present on the topic. Course includes portfolio and career development.
Spring only and every year. 3 Credits

GS-408 Directed Study: Geography
Directed study offers students, who because of unusual circumstances may be unable to register for a course when offered, the opportunity to complete an existing course with an established syllabus under the direction and with agreement from a faculty member.
3-4 Credits

GS-410 Independent Study: Geography
Opportunity for advanced students to pursue a topic of special interest involving extensive reading, experimentation, and research.
Every year. 1-4 Credits

GS-420 Advanced Geoscience Research and Fieldwork
Lab and or field-based research on a specific geoscience topic under supervision of a faculty member. [Permission of instructor.]
Fall and Spring and every year. 1-6 Credits

GS-450 Readings and Directed Research
Directed study on selected topics; open to senior majors.
Fall and Spring and every 2-3 years. 3 Credits

GS-460 Internship: Geography
Students assigned to various government and private agencies under joint supervision of agency and faculty. Major GPA of 3.0 or above required.
Fall and Spring and other or on demand. 1-6 Credits

GS-470 Selected Topics: Geography
Prerequisites: GS-101 and one course from GS-210, GS-225, GS-230, GS-235, GS-250, GS-260, GS-290 or GS-310
Topic or subject to be announced in advance; topic to be relevant to student needs and interests and availability of professor.
Spring only and every 2-3 years. 1-6 Credits