

Geography (GEOG)

Contact the Earth, Space, and Aviation Sciences Department for further information.

(760) 744-1150, ext. 2512

Office: NS-110G

Certificates of Proficiency -

Certificate of Proficiency requirements are listed in Section 6 (green pages).

- Geographic Information Systems

PROGRAM OF STUDY

Geographic Information Systems

The Geographic Information Systems Certificate program is designed to provide entry-level training for students seeking employment in this fast-growing profession, or to upgrade the skills for those already working in the field of Geographic Information Systems. The program may be completed in one year including summer session.

Associate in Arts degree requirements are listed in Section 6 of the catalog. Certificates of Achievement or Proficiency require a minimum grade of 'C' in each of the required courses.

CERTIFICATE OF PROFICIENCY

Program Requirements		Units
GEOG 120	Intro to Geographic Information Sys/GIS Software	4
GEOG 132	Database Management and Data Acquisition	4
GEOG 136	Intermediate ArcGIS: GIS Analysis	2
GEOG 138	GIS Internship	2
Electives (Select 1 course)		
CSIT 170	Visual Basic I	4
GEOG 134	GIS Applications	2
TOTAL UNITS		14 - 16

COURSE OFFERINGS

GEOG 100 Physical Geography (3)

3 hours lecture

Transfer acceptability: CSU; UC; CAN GEOG 2

A study of earth's physical environment with emphasis on weather, climate, landform, soils, and natural vegetation and the interrelationship between these elements within unique physical landscapes.

GEOG 100L Physical Geography Laboratory (1)

3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, GEOG 100

Transfer acceptability: CSU; UC

Laboratory and field investigations in weather elements, climate regions, soils, world ecosystems, and Earth's landform features. Satisfies laboratory requirement in physical sciences.

GEOG 103 World Regional Geography (3)

3 hours lecture

Transfer acceptability: CSU; UC

Critical survey of the major world regions with specific focus on physical and cultural components, such as development, economics, population and migration, political structure, and natural resources and the physical environment.

GEOG 105 Introduction to Human Geography (3)

3 hours lecture

Transfer acceptability: CSU; UC; CAN GEOG 4

Human elements of geography, including population distribution, general land use patterns, religion, trade and economy, and their correlation with the physical elements. Emphasis on world cultural regions with attention paid to interdependence and globalization.

GEOG 110 Meteorology: Weather and Climate (3)

3 hours lecture

Transfer acceptability: CSU; UC

Elements of weather including temperature, moisture, air pressure, and circulation of the atmosphere; air masses, storms, and their geographical distribution. Practical applications in the use of weather instruments, and the reading and interpretation of weather maps and climatological data.

GEOG 115 Natural Disasters and Environmental Hazards (3)

3 hours lecture

Note: Cross listed as ES 115

Transfer acceptability: CSU; UC

Examination and analysis of natural disasters and environmental hazards including earthquakes, tsunamis, volcanic activity, hurricanes, flooding, air and water pollution, and global climate change.

GEOG 120 Introduction to Geographic Information Systems and GIS Software (4)

3 hours lecture-3 hours laboratory

Recommended preparation: GEOG 100 and CSIT 105

Transfer acceptability: CSU; UC

An introduction to the mapping sciences with a primary focus on Geographic Information Systems (GIS). Covers the trends, history, structure, application, hardware and software, and basic operations of GIS in order to provide a foundation for the use of GIS software. Related geographic technologies to be examined include mapping, aerial and satellite imagery, and Global Positioning Systems (GPS). The lab portion will provide introductory training in the use of ArcGIS software including identifying, evaluating, and inputting spatial data, developing and using raster and vector data sets, converting data from one form to another, and applying programming with GIS software.

GEOG 125 California Geology and Geography (3)

3 hours lecture

Note: Cross listed as GEOL 125

Transfer acceptability: CSU; UC

Emphasizes the physical geographic and geologic factors that have combined to form the varied landscapes of California. Climate and vegetation patterns, as well as the various geomorphic processes will be studied.

GEOG 132 Database Management and Data Acquisition (4)

4 hours lecture

Prerequisite: Completion of, or concurrent enrollment in, GEOG 120

Transfer acceptability: CSU

Course provides students with knowledge and practical experience in the fundamentals of database management, and the acquisition, conversion, and creation of spatial data within Geographic Information Systems (GIS). Topics to include strategic design, querying, modeling techniques, data appropriateness and accuracy, hardware and software requirements, conversion of digital data, creating digital data using digitizers, scanners and Global Positioning Systems (GPS), and utilization of remote sensing, photogrammetry, and web-based data. This course provides hands-on experience with database management and data acquisition using ArcGIS software.

GEOG 134 GIS Applications (2)

4 hours lecture/laboratory

Prerequisite: GEOG 120

Transfer acceptability: CSU

This course provides students with knowledge and practical experience in Geographic Information Systems (GIS) applications. Students will learn the fundamentals of GIS programming, converting data for web publications, and developing GIS applications. The lab portion of this course provides hands-on experience with GIS programming using Visual Basic for Applications (VBA), data conversion using Arc Tools, and applications development using MapObjects software.

GEOG 136 Intermediate ArcGIS: GIS Analysis (2)

4 hours lecture/laboratory

Prerequisite: GEOG 120

Transfer acceptability: CSU

This course will focus on more complex operations in using ArcGIS software. Students will gain hands-on experience in advanced querying operations, the use of ArcGIS extensions such as Spatial Analyst and 3D Analyst, transforming coordinates using Coordinate Geometry, using a GPS unit to generate and input spatial data, and the application of ArcGIS as an analytical tool in a variety of disciplines.

GEOG 138 GIS Internship (2)
 6 hours laboratory
Prerequisite: GEOG 120
Transfer acceptability: CSU
 The Geographic Information Systems (GIS) internship is a directed program allowing students to apply classroom instruction to real-world GIS problem solving by working with a government or private agency. Students will be under the supervision of an instructor from the college and an advisor from the agency while working in one or more aspects of GIS operations.

GEOG 195 Regional Field Studies in Geography (1,2,3)
 2, 4, or 6 hours lecture/laboratory
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
 Extended field studies of the geography of selected regions. Emphasis upon field observation and interpretation of climate, meteorology, vegetation, soils, and landforms.

GEOG 295 Directed Study in Geography (1,2,3)
 3, 6, or 9 hours laboratory
Prerequisite: Approval of project or research by instructor
Note: May be taken 4 times for a maximum of six units
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
 Independent study for students who have demonstrated skills and/or proficiencies in geography subjects and have the initiative to work independently on projects or research outside the context of regularly scheduled classes. Students will work under the personal supervision of an instructor.

Geology (GEOL)

Contact the Earth, Space, and Aviation Sciences Department for further information.
 (760) 744-1150, ext. 2512
 Office: NS-110G

Associate in Arts Degrees -
 AA Degree requirements are listed in Section 6 (green pages).
 • Geology

PROGRAM OF STUDY

Geology

Provides the student with sufficient background to begin upper division coursework and will prepare the student for entry-level jobs that require geologic knowledge. The student is advised to check with the school to which he/she may wish to transfer for additional courses which may be required.

A.A. DEGREE MAJOR

Program Requirements	Units
Group One	
GEOG 100 Basic Geology	3
GEOG 100L Basic Geology Laboratory	1
GEOG 150 Dinosaurs and Earth History	3
GEOG 150L Dinosaurs and Earth History Laboratory	1
GEOG 195 Regional Field Studies in Geography	2
Group Two (Select at least two sets of courses listed below)	
Set 1	
MATH 140 and Calculus/Analytic Geometry, First Course	5
MATH 141 Calculus/Analytic Geometry, Second Course	4
Set 2	
PHYS 120 and PHYS 121 General Physics	8
or	
PHYS 230 and PHYS 231 Principles of Physics	10

Set 3		
CHEM 110	General Chemistry	3
CHEM 110L	General Chemistry Laboratory	2
CHEM 115	General Chemistry	3
CHEM 115L	General Chemistry Laboratory	2

Group Three (Select at least 8 units)		
Any other courses in Group Two not taken above		
GEOL 110	General Geology: National Parks	3
GEOL/		
GEOG 125	California Geology and Geography	3
GEOL 195	Regional Field Studies in Geology	1,2,3
GEOL 197	Geology Topics	1,2,3
GEOL 295	Directed Study in Geology	1,2,3
ASTR 100	Principles of Astronomy	3
BIOL 100	General Biology	4
MATH 205	Calculus/Analytic Geometry, Third Course	4
MATH 206	Calculus/Differential Equations	4
OCN 100	Oceanography	3
OCN 100L	Oceanography Laboratory	1
OCN 115	Coastal Oceanography	3
PHYS 232	Principles of Physics	4

TOTAL UNITS 35 - 38

COURSE OFFERINGS

GEOL 100 Basic Geology (3)
 3 hours lecture

Note: Together with GEOL 150, a prerequisite to upper division courses in Geology

Transfer acceptability: CSU; UC; CAN GEOL 6

Principles of physical geology. Plate tectonics, rocks and minerals, weathering, mass-wasting, surface and ground water, wind, waves and currents, glaciation, mountain building, volcanoes and other igneous activity, deformation and resulting structures, earthquakes, Earth's interior, geologic time, and earth resources.

GEOL 100L Basic Geology Laboratory (1)
 3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, GEOL 100

Note: May be offered as a field laboratory; satisfies lab requirement in Physical Science

Transfer acceptability: CSU; UC

Laboratory and field identification of rocks and rock forming minerals. Study of geologic processes by means of geologic and topographic maps.

GEOL 110 General Geology: National Parks and Monuments (3)
 3 hours lecture

Transfer acceptability: CSU

Geologic history and processes of formation of our natural landscape. Principles of physical and historical geology as revealed in the structure, stratigraphy, and rock types of the parks and monuments.

GEOL 120 Planets, Moons, and Comets (3)
 3 hours lecture

Note: Cross listed as ASTR 120

Transfer acceptability: CSU; UC – ASTR/GEOL 120 and ASTR 205 combined: maximum credit, one course

The astronomy and geology of the solar system, observations, dynamics, relativistic ideas, including theories of formation and evolution. Comparative survey of the atmospheres, surface features, and interiors of planets and satellites. Minor objects, such as comets and asteroids, will be included.

GEOL 125 California Geology and Geography (3)
 3 hours lecture

Note: Cross listed as GEOG 125

Transfer acceptability: CSU; UC

Emphasizes the physical geographic and geologic factors that have combined to form the varied landscapes of California. Climate and vegetation patterns, as well as the various geomorphic processes will be studied.