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 140 Introduction to Remote Sensing (1)
1 hour lecture
Recommended preparation: *Basic familiarity with computers and the windows operating system.*
Transfer acceptability: *CSU*
Provides students with a basic understanding of remote sensing theory and implementation. Topics include satellite imageries, data acquisition, and image interpretation.

GEOG 141 Transportation Systems Analysis (1)
1 hour lecture
Prerequisite: *A minimum grade of 'C' in GEOG 120*
Transfer acceptability: *CSU*
Provides students with more advanced practical experience in applying GIS to transportation systems. Students will gain more advanced hands-on experience using GIS as a tool to help model transportation planning, find the shortest routes, and analyze service areas and optimum routing. Introduces students to ESRI's network analyst extension and the various ways this tool can enhance transportation analysis.

GEOG 142 Environmental Applications of GIS (1)
1 hour lecture
Prerequisite: *A minimum grade of 'C' in GEOG 120*
Transfer acceptability: *CSU*
Provides students with knowledge and practical experience in the application of GIS in an environmental setting. We will explore how location-based GIS tools are used in many areas of environmental management such as natural disasters, biodiversity, water resources, and pollution. Case studies will be used to explore and understand how GIS is being used to help preserve the earth's resources and environment.

GEOG 143 Introduction to Cartography and Computer Mapping (1)
1 hour lecture
Prerequisite: *A minimum grade of 'C' in GEOG 120*
Transfer acceptability: *CSU; UC*
Provides the technical and design skills needed to create an effective map using Geographic Information Systems (GIS). Students will receive a review on map projection, coordinate systems, and datum transformation issues. In addition, students will learn about map templates, map annotations, and other tools that are used to enhance spatial data presentation.

GEOG 195 Regional Field Studies in Geography (1, 2, 3)
½, 1, or 1½ hours lecture - 1½, 2, 2½, 3, 3½, 4, or 4½ hours laboratory hours lecture 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 basic 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		
GEOL 100	Basic Geology	3
GEOL 100L	Basic Geology Laboratory	1
GEOL 150	Dinosaurs and Earth History	3
GEOL 150L	Dinosaurs and Earth History Laboratory	1
GEOL 195	Regional Field Studies in Geology	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		8-10
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
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*
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: *A minimum grade of 'C' in GEOL 100, 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.

GEOL 150 Dinosaurs and Earth History (3)
3 hours lecture
Prerequisite: *A minimum grade of 'C' in GEOL 100, 110 or 125*
Transfer acceptability: *CSU; UC*
Principles of historical geology. The origin and evolution of Earth and its biosphere, incorporating plate tectonics, stratigraphy, paleontology, and geologic dating. Together with GEOL 100, a prerequisite to upper division courses in geology.

GEOL 150L Dinosaurs and Earth History Laboratory (1)
3 hours laboratory
Prerequisite: *A minimum grade of 'C' in GEOL 150, or concurrent enrollment in GEOL 150*
Transfer acceptability: *CSU; UC*
Laboratory and field identification of rocks and fossils. Elements of stratigraphic methods and of vertebrate and invertebrate paleontology. Study of geologic and topographic maps in relation to earth history.

GEOL 195 Regional Field Studies in Geology (1, 2, 3)
½, 1½ hours lecture - 1½, 4½ hours laboratory
Prerequisite: *A minimum grade of 'C' in GEOL 100, 110 or 125 or GEOG 100*
Note: *May be taken 4 times with different content for a maximum of 6 units*
Transfer acceptability: *CSU; UC – Credit determined by UC upon review of course syllabus.*
Extended field studies of the geology of western North America over weekends and during vacation and summer sessions. Emphasis upon field observation and interpretation of rock types, landforms, and structure. Localities visited may vary from year to year.

GEOL 197 Geology Topics (1-3)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.
Note: *May be taken 3 times for a maximum of 6 units*
Transfer acceptability: *CSU*
Topics in Geology. See Class Schedule for specific topic offered. Course title will designate subject covered.

GEOL 295 Directed Study in Geology (1, 2, 3)
Arrange 3, 6, or 9 hours laboratory with department chairperson
Prerequisite: *A minimum grade of 'C' in GEOL 150*
Note: *May be taken 4 times for a maximum of 6 units*
Transfer acceptability: *CSU – UC Credit determined by UC upon review of course syllabus.*
Individual study in field, library, or laboratory for interested students.

German (GERM)

Contact the World Languages Department for further information.
(760) 744-1150, ext. 2390
Office: F-5

COURSE OFFERINGS

For students who have completed foreign language course work at the high school level, and need clarification regarding placement in college level course work, contact the Counseling Center. Universities have varying policies regarding the granting of transfer credit when there is a combination of high school and college level course work.

GERM 101 German I (5)
5 hours lecture - 1 hour laboratory
Transfer acceptability: *CSU; UC*
This course is the first semester of German. This elementary level course is a study of the German language and German-speaking cultures, with emphasis on the development of communicative skills and basic structures. Course combines in-class instruction and practice with self-paced study in the Foreign Language Laboratory. This beginning-level course is for students with no previous coursework in German.

GERM 102 German II (5)
5 hours lecture - 1 hour laboratory
Prerequisite: *A minimum grade of 'C' in GERM 101 or 101B or two years of high school German*
Transfer acceptability: *CSU; UC*
This course is the second semester of German. This elementary level course is a study of the German language and German-speaking cultures, with continued emphasis on the development of communicative skills and basic structures. Course combines in-class instruction with self-paced study in the Foreign Language Laboratory.

GERM 201 German III (5)
5 hours lecture
Prerequisite: *A minimum grade of 'C' in GERM 102 or three years of high school German*
Transfer acceptability: *CSU; UC*
This course is the third semester of German. This intermediate level course is a study of the German language and German-speaking cultures, focusing on intermediate level structures and readings of culturally relevant authentic materials. Emphasis is on developing oral, listening, reading and writing skills in order to acquire proficiency in German. Class is largely conducted in German.