

# GEOGRAPHY

## Contact Information

### Division

Sciences and Mathematics

### Dean

Heather Roberts

### Associate Dean

Karen Warburton

### Division Office

V 211, Rocklin Campus

## Overview

The Geography Department offers transfer courses to four-year colleges in diverse academic disciplines such as Geography, Geographic Information Systems (GIS), Earth Science, Environmental Science, Meteorology, Climatology, Natural Resource Management, Tourism and Recreation, Urban Planning, International Studies, Anthropology and related social sciences. Emphasis in advancing geographic literacy, global awareness and sustainability in the fields of physical and human geography; field study classes provide experiential and interpretive training. Additional technical courses provide expertise in the exciting and fast-growing field of GIS and GeoSpatial technologies. A skills certificate is offered in GIS.

### Sean A. Booth

#### Professor, Geography

B.S., University of Oregon

M.A., California State University, Chico

### Carol Jean Cox

#### Professor, Geography

B.A., California Polytechnic State University, San Luis Obispo

M.A., California State University, Chico

## Geographic Information Systems (GIS) Advisory Committee

- Daniel Armstrong, GIS Specialist, Open Spatial, Rocklin
- Marc Ball, IT Specialist, City of Roseville
- Diana Carolan, GIS Specialist, Nevada County
- Michael Farrauto, Surveyor and GIS Specialist, Andregg Geomatics, Auburn
- Matt Freemont, Environmental Planner and GIS Specialist, HELIX, Folsom
- Dave Hansen, GIS Specialist, U.S. Bureau of Reclamation, Sacramento
- Kermit Hellem, GIS Manager, Sacramento Municipal Utility District
- Abe Hendricks, CAD and GIS Specialist, Placer County Water Agency, Auburn
- Scott Herbert, GIS Sales, California Surveying and Drafting Supply, Inc., Sacramento
- Colin Hobson, GIS Specialist, Open Spatial, Rocklin
- Hugh Howard, Geography and GIS Professor, American River College, Sacramento
- Brian Johnson, GIS Specialist, City of Roseville

- Dave Krolick, GIS Specialist, ECORP Consulting, Rocklin
- Justin Narkter, Public Works Specialist, City of Rocklin
- Steve Rhyne, GIS Specialist, Fehr and Peers, Roseville
- Sabastian Roberts, GIS Specialist, Nevada County
- Jeff Swager, GIS Specialist, ECORP Consulting, Rocklin
- Justin Wages, Land Manager, Placer Land Trust, Auburn

## Degrees/Certificates

### Associate Degree for Transfer

- Geography for Transfer (p. 1)

### Skills Certificate

- Geographic Information System (GIS) (p. 2)

## Geography for Transfer

### AA-T Degree

The Associate in Arts in Geography for Transfer degree (AA-T) program provides students with a strong foundation in Geography. Upon completion of the program, students will demonstrate knowledge of global physical and environmental processes; formulate an appreciation of world cultural diversity, including demographics, ethnic studies, agricultural practices, economic development and resource consumption; generate solutions for a sustainable future; holistically assess integrative environmental and cultural phenomena based on location and maps; assemble and analyze spatial information (such as maps, data, surveys, qualitative observations), using traditional and modern mapping technology methods; and integrate cultural, environmental and geographic technology methods.

The Associate in Arts in Geography for Transfer degree (AA-T) prepares students to transfer into the CSU system to complete a bachelor's degree in Geography or a major deemed similar by a CSU campus. Students earning an associate degree for transfer and meeting the CSU minimum transfer admission requirements are guaranteed admission with junior standing to the CSU system, but not to a particular campus or major. Upon transfer, students will be required to complete no more than 60 additional prescribed units to earn a bachelor's degree.

To earn the Associate in Arts in Geography for Transfer degree, students must complete 60 CSU-transferable semester units with a minimum grade point average of 2.0, including both of the following:

- completion of all courses required for the major with grades of "C" or better; and
- completion of the California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2017-2018/student-resources/general-education/california-state-university-general-education-breadth-requirements>) pattern or the Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2017-2018/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc>) pattern. (Students transferring to a CSU campus using IGETC must complete Area 1C Oral Communication to be eligible for admission.)

The exact wording of the law pertaining to associate degrees for transfer may be found in Education Code Section 66746.

It is highly recommended that, prior to transferring, students complete courses that satisfy the CSU United States History, Constitution and

American Ideals graduation requirement. In all cases, students should consult with a counselor for more information on university admission and transfer requirements.

**RESTRICTION:** International coursework from non-United States regionally accredited institutions cannot be applied to associate degrees for transfer.

#### Required Courses

|   |   |            |
|---|---|------------|
| GEOG 0001   | Physical Geography                                      | 3          |
| GEOG 0001L  | Physical Geography Laboratory                           | 1          |
| GEOG 0002   | Cultural Geography                                      | 3          |
| <b>Select 6-8 units from the following:</b>   |   | <b>6-8</b> |
| GEOG 0003   | Geography of California                                 |            |
| GEOG 0004   | Weather and Climate                                     |            |
| GEOG 0005   | World Regional Geography                                |            |
| GEOG 0011   | Urban Geography of San Francisco <sup>1</sup>           |            |
| or GEOG 0012  | Historical Geography of Northern California Communities |            |
| or GEOG 0014  | Field Geography of Yosemite and the Eastern Sierra      |            |
| or GEOG 0016  | Field Geography   |            |
| GEOG 0090   | Introduction to Geographic Information Systems (GIS)    |            |
| <b>Select 6-7 units from the following or unused courses from the preceding area:<sup>1</sup></b> |   | <b>6-7</b> |
| ANTH 0002   | Cultural Anthropology                                   |            |
| ESCI 0001   | Physical Geology  |            |
| MATH 0013   | Elementary Statistics                                   |            |
| Total Units   |   | 19-22      |

<sup>1</sup> A maximum of 2 units may be taken from GEOG 0011, 0012, 0014, and 0016.

## Geographic Information System (GIS)

### Skills Certificate

Designed for students to gain a solid foundation in GIS theory and related technologies, such as GPS and remote sensing. Sequence of courses build upon each other to provide hands-on technical skills demanded of the professional workforce, culminating with a professional map portfolio and repertoire of spatial analysis skills. Opportunities for interns and entry-level positions are abundant, provided students learn industry-standard software, GPS skills, database management and mapping design. Students must choose from additional courses, such as computer-aided design (CAD), database management, computer programming, surveying, spatial analysis and are encouraged to participate in an internship. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses

|   |  |          |
|---|--|----------|
| GEOG 0086                                 | Global Positioning System (GPS) for GIS              | 1        |
| GEOG 0090                                 | Introduction to Geographic Information Systems (GIS) | 4        |
| GEOG 0093                                 | Advanced GIS   | 4        |
| <b>Select 6 units from the following:</b> |  | <b>6</b> |
| CIS 0090                                  | Database Management                                  |          |

|             |  |    |
|-------------|--|----|
| CSCI 0012   | Programming Concepts and Methodology I |    |
| CSCI 0052   | Introduction to SQL                    |    |
| ENGR 0010   | Engineering Survey Measurements        |    |
| GEOG 0085   | Application of Geospatial Technologies |    |
| GEOG 0091B  | Intermediate Arc GIS                   |    |
| GEOG 0094   | Geospatial Analysis                    |    |
| GEOG 0095   | Internship in Geography                |    |
| Total Units |  | 15 |

## Courses

Understanding course descriptions (<http://catalog.sierracollege.edu/archive/2017-2018/student-resources/course-information/understanding-course-descriptions>)

### GEOG 0001. Physical Geography

*Units: 3*

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

A spatial study of the Earth's dynamic physical systems and processes, including the earth's atmosphere, weather, climate regions, hydrosphere; oceans, clouds, rivers; biosphere, and the solid earth including its landforms. Emphasis on the holistic understanding of environmental systems, as they relate to location. Human influence on the natural world examined in an integrative manner using spatial inquiry. Geographic tools used may include maps and visual imagery, remote sensing and computer technologies of modeling, Global Positioning Systems (GPS) and Geographic Information Systems (GIS). (C-ID GEOG 110) (combined with GEOG 1L, C-ID GEOG 115) (CSU, UC)

### GEOG 0001L. Physical Geography Laboratory

*Unit: 1*

Prerequisite: Completion with grade of "C" or better or concurrent enrollment in GEOG 1

Hours: 54 laboratory

Earth's physical systems, atmosphere, weather and climate, landforms and fluvial systems; includes map reading and investigating remote sensing, GPS, and Geographic Information Systems (GIS). (C-ID GEOG 111) (combined with GEOG 1, C-ID GEOG 115) (CSU, UC)

### GEOG 0002. Cultural Geography

*Units: 3*

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

Diverse patterns of cultural development including population, religion, languages, political systems and other societal characteristics. Analysis of spatial differences of cultures including housing types, city planning, agricultural techniques, and popular and folk customs. Investigation of humans as the primary modifier of the physical landscape within the limits of the earth's resources. (C-ID GEOG 120) (CSU, UC)

### GEOG 0003. Geography of California

*Units: 3*

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

An introduction to California's diversified geography including climate, landforms, natural vegetation, and water resources, the cultural landscapes of ethnic diversity, our Native American past, urban and agricultural regions, and the economic challenges of the future. Emphasis on cultural diversity, human alteration of the landscape, contemporary problems and resource competition. (C-ID GEOG 140) (CSU, UC)

**GEOG 0004. Weather and Climate***Units: 3*

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

The elements and controls of weather and climate - atmospheric heating, the heat budget, air circulation and winds, moisture, clouds, and precipitation; world climates, their elements and classifications; climate variations and changes. (C-ID GEOG 130) (CSU, UC)

**GEOG 0005. World Regional Geography***Units: 3*

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

An introduction to the world's major geographic regions; their cultural practices, politics, economics, religions, history and environmental characteristics. Location and analysis of important geographic features including mountains, rivers, countries and major cities of Asia, Australia, Africa, North America, Europe and South America. (C-ID GEOG 125) (CSU, UC)

**GEOG 0011. Urban Geography of San Francisco***Unit: 1*

Hours: 30 (12 lecture, 18 laboratory)

Exploration of the cultural, economic and urban geography of San Francisco. This field course provides an introduction to the area's diversified geography including its location, ethnic diversity, urban settlement patterns and an overview of historical and economic regions. Students may be required to walk moderate distances. Additional fees may be required. (C-ID GEOG 160) (CSU)

**GEOG 0012. Historical Geography of Northern California Communities***Unit: 1*

Hours: 30 (12 lecture, 18 laboratory)

This field course explores cultural and historical geography of Northern California communities. Introduction to Northern California's diversified geography including physical landforms, economic diversity, settlement patterns and history of the Northern California communities. (C-ID GEOG 160) (CSU)

**GEOG 0014. Field Geography of Yosemite and the Eastern Sierra***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Examination of physical and cultural geography of Yosemite Valley/the Eastern Sierra. This field course emphasizes fluvial and glacial landforms, geological patterns, weather, and climate regions, and the distribution of water resources. Cultural geographies include patterns of Native American and early pioneer settlements, current land use and economic activities. May involve light hiking. Additional fees may be required. (C-ID GEOG 160) (CSU)

**GEOG 0015. Field Geography of Northern California***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Investigation of cultural and physical geography of a region in Northern California. This field course provides an introduction to the area's diversified geography including its location, physical landforms, economic diversity, urban settlement patterns and an overview of historical and cultural regions. May involve light hiking. Additional fees may be required. (CSU)

**GEOG 0016. Field Geography***Units: 1-2*

Hours: 30 (12 lecture, 18 laboratory) per unit

Field lecture courses to regions of geographic interest to include physical, cultural, urban and/or historical elements. (C-ID GEOG 160) (CSU)

**GEOG 0028. Independent Study***Units: 1-3*

Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU, UC-with unit limitation)

**GEOG 0085. Application of Geospatial Technologies***Unit: 1*

Hours: 18 lecture

Investigation of GIS case studies used in industry and government; explores how industry uses GIS with emphasis on natural resource management and watershed analysis. Additional focus on remote sensing, aerial photography, GPS technology. (CSU)

**GEOG 0086. Global Positioning System (GPS) for GIS***Unit: 1*

Hours: 18 lecture

Global Positioning System (GPS) theory, techniques, and case studies, GPS set-up, spatial database organization, field collection, editing, and integration into the GIS. Culminates with final GPS mapping project. (CSU)

**GEOG 0090. Introduction to Geographic Information Systems (GIS)***Units: 4*

Hours: 72 lecture

Study of Geographic Information Systems (GIS) and its applications to spatial data management. Project design, data acquisition, database management, geographic analysis, and map design. Explores how GIS solves spatial problems, such as those in natural resources, earth and life sciences, environmental planning, local government, business, transportation, and other fields. (C-ID GEOG 155) (CSU, UC)

**GEOG 0091A. Beginning Arc GIS***Unit: 1*

Hours: 18 lecture

Introduction to Geographic Information Systems (GIS) mapping software used to manage, analyze and display spatial information. Create reports and map layouts, query geographic databases, and solve spatial problems. Emphasis on using GIS software for practical applications in the fields of natural resource management, disaster mapping, cartographic design, urban planning, business and other related fields. (CSU)

**GEOG 0091B. Intermediate Arc GIS***Unit: 1*

Prerequisite: Completion with a grade of "C" or better, or concurrent enrollment in GEOG 90 or 91A

Hours: 18 lecture

Builds on basic principles of ArcGIS, focusing on queries, managing and preparing data for analysis, creating and editing GIS data, Geodatabases, spatial analysis and producing map layouts. (CSU)

**GEOG 0093. Advanced GIS***Units: 4*

Prerequisite: Completion of GEOG 90 with grade of "C" or better

Hours: 72 lecture

Builds on Intermediate GIS focusing on advanced technical skills and mapping, such as working with spatial databases, GIS models, vector and raster analysis, cartographic presentation and various outputs. Student completes a research project and assembles a map portfolio. (CSU)

**GEOG 0094. Geospatial Analysis**

*Units: 3*

Prerequisite: Completion with grade of "C" or better, or concurrent enrollment in GEOG 90 or 91B

Hours: 54 lecture

Geospatial analysis reveals patterns, relationships, and trends that solve real-world challenges. With GIS tools, students create surface contours, derive slopes, calculate flow direction, draw watersheds, determine line of sight and identify hotspots. GIS modeling and extensions are used. (CSU)

**GEOG 0095. Internship in Geography**

*Units: 0.5-4*

Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)

## **Program Student Learning Outcomes (PSLOs)**

- Demonstrate knowledge of global physical and environmental processes, locations and develop an appreciation of landscapes.
- Formulate an appreciation of world cultural diversity, including demographics, ethnic studies, agricultural practices, economic development, resource consumption and generate solutions for a sustainable future.
- Utilizing the concept of a region as a geographic unit of study, holistically assess integrative environmental and cultural phenomenon based on location and maps.
- Assemble and analyze spatial information (maps, data, surveys, qualitative observations, etc.), using traditional and modern mapping technology methods.
- Applying experiential learning and real-world applications, field studies integrate cultural, environmental and geographic technology methods.