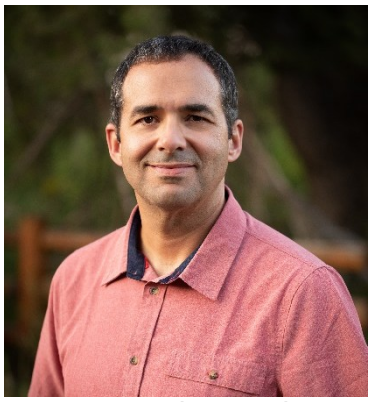
Geography Student Handbook

Sacramento State Geography, 2026-2027

Welcome to Geography

> "Of all the disciplines, it is geography that has captured the vision of the earth as a whole."
>
> *Kenneth Boulding*

WELCOME, GEOGRAPHY STUDENTS!



Welcome to our department.

This student handbook provides a way for you to track your degree progress and helps you navigate a path—not only to complete your degree—but to seek a profession in geography or attend graduate school. Hopefully, it will serve you as a convenient resource for general information about the department, information about the degree programs, whom to contact with various questions, and a little about the discipline of geography.

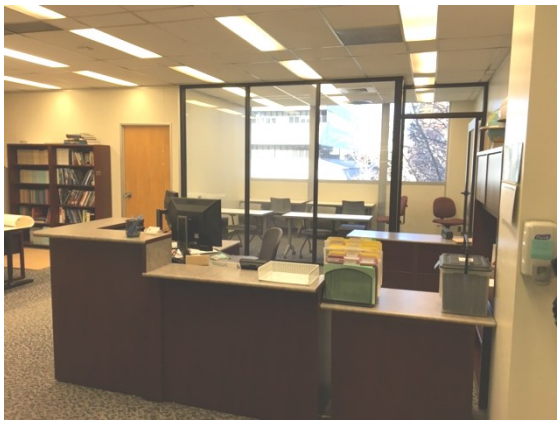
This handbook does not replace the personal one-to-one contact between you and your advisor. We require that you meet with your advisor every fall semester before you register for Spring courses. If you have specific questions about courses or your degree progress, ask your advisor, and you can ask these questions at any time. When you declare geography as your degree, you are automatically assigned an advisor, but you may, at any time, change your advisor to one of the other full-time professors. Simply tell the department coordinator (Pedro Garcia; 916-278-6109, geography@csus.edu) who you want to advise you. The decision is yours.

The department coordinator is a great source for advice and answers to general questions. The department office is located in Sequoia Hall 334. You can contact any of our faculty by e-mail, phone or leave them a note in their mailbox (in the department office). We are here for you.

Most importantly, the department faculty and staff want you to do your best, succeed, and to enjoy your academic experiences in our department. Again, welcome.

Dr. Matt Schmidtlein
Professor and Chair of Geography
Sequoia Hall 334D
schmidtlein@csus.edu
(916) 278-7581

DEPARTMENT OFFICE



We are located in Sequoia Hall, Room 334. It is usually open between 8:00 a.m. and 5:00 p.m., Monday through Friday with the exception of the lunch hour. Our department coordinator, Pedro Garcia, will do his best to help with any inquiries. He can aid you with many tasks including:

- making initial inquiries
- leaving written messages for faculty
- handing in course work outside of class time
- furnishing proper forms including (but not limited to) add/drop, withdrawal, change advisor, and name/address/contact change.
- changing your major or concentration
- helping to schedule appointments with your advisor or other faculty
- answering general questions

Pedro Garcia
Geography Department Coordinator
Sequoia Hall 334
geography@csus.edu
(916) 278-6109

CONTACTING GEOGRAPHY AT SACRAMENTO STATE

Our address is:

Department of Geography
CSU Sacramento
6000 J St.
Sacramento, CA 95819-6003
(916) 278-6109
geography@csus.edu
http://www.csus.edu/geog/

BECOMING INVOLVED

The Sacramento State Geography Department has a chapter of Gamma Theta Upsilon, the international honor society in geography, as well as a club for its majors. The Sacramento State Geography Club schedules regular social events at which students, faculty, and staff have a chance to relax and socialize.

We encourage student participation in the annual meetings of the California Geographical Society and the Association of Pacific Coast Geographers, which usually occur in May and September, respectively. Both include student paper and poster competitions. You can learn

about these organizations and their opportunities for students at http://calgeog.org/ and http://apcgweb.org/.

SUPPORTING THE DEPARTMENT

We largely rely upon donations from alumni and community members to support department outreach, events, and well as scholarship and other student support funds. If you know of folks who may be interested in supporting our work, please share this QR code (link: https://securelb.imodules.com/s/1894/19/home-hero.aspx?sid=1894&gid=2&pgid=418&cid=1063&dids=90).

FACULTY PROFILES AND CONTACT INFORMATION

Our department houses very active geographers who are involved in successful efforts of teaching, research, scholarship, creative activities, community service, and leadership in the discipline. The following list outlines the degrees, specializations, some of the courses they teach, and contact information for each of our faculty members:

PERMANENT FACULTY

	Jasmine Arpagian, Ph.D. (San Diego State University), Assistant Professor	Interests: Participatory Planning, Qualitative GIS Courses: Urban and Regional Planning, Europe, Themes in World Geography	SQU 314 arpagian@csus.edu (916) 278-4564
	Bruce Gervais, Ph.D. (UCLA), Professor	Interests: Biogeography, Climatology, Paleoecology, Sustainability. Courses: Physical Geography, Meteorology, Biogeography, Earth Transformed.	SQU 308 gervais@csus.edu (916) 278-4207

	Caroline Keegan, Ph.D. (University of Georgia), Assistant Professor	Interests: Labor, Political Ecology, Race and Migration, Engaged Research, Feminist Qualitative Methods Courses: Cultural Geography, Political Ecology	SQU 302 c.keegan@csus.edu
	Anna Klimaszewski-Patterson, Ph.D. (University of Nevada Reno), Professor	Interests: Paleoecology/ Landscape Archaeology; Landscape Modeling; Geovisualization; Augmented/Virtual Reality and Internet of Things (IoT); GIScience; Applied Geography Courses: Applied GIS, Computer Cartography, Programming for GIS I & II, Database Management, Physical Geography, Visualizing Global Environments	SQU 330 anna.kp@csus.edu (916) 278-4272
	Tom Krabacher, Ph.D. (UC Davis), Professor	Interests: Cultural Ecology, Economic Development, Landscapes, Environmental History. Courses: Physical Geography, Themes in World Geography, Climate, Population, Geography of Africa, Field Geography (Suburban-Rural), Senior Research Seminar in Geography, Ideas & Skills in Geography	SQU 334 krabacherts@csus.edu (916) 278-6338

	Hanieh Haji Molana, Ph.D. (Kent State), Assistant Professor	Interests: Cultural Geography, Geography of the Middle East, Feminist Geography, Urban Geography, Qualitative Methods. Courses: Cultural Geography, Geography of the Middle East, Feminist Geography, Qualitative Methods	SQU 306 hajimolana@csus.edu (916) 278-4576
	Patrick Oberle, Ph.D. (Syracuse), Associate Professor	Interests: Urban Geography, GIScience, Participatory GIS, Historical Geography, Post-Industrial Cities, North America Courses: Geographic Information Systems, Transforming the City, Applied GIS, Cartography, U.S. and Canada, Senior Research Seminar, Themes in World Geography	SQU 310 patrick.oberle@csus.edu (916) 278-3881
	Erica Orcutt, Ph.D. (UC Davis), Assistant Professor	Interests: Remote Sensing, Biogeography, Habitat Modeling Courses: Physical Geography, Global Climate Change, Remote Sensing	SQU 312 erica.orcutt@csus.edu (916)278-6987

	Mathew Schmidtlein, Ph.D. (University of South Carolina), Professor and Chair	Interests: Environmental Hazards and Vulnerability, GIScience, Public Health. Courses: Advanced Geographic Information Systems, Quantitative Methods in Geography, Physical Geography, Environmental Hazards & Society, Introduction to Maps & Geographic Techniques.	SQU 334 schmidtlein@csus.edu (916) 278-7581
	James Wanket, Ph.D. (UC Berkeley), Professor	Interests: Quaternary Studies, Climate Change, Biogeography, Geomorphology, California. Courses: Physical Geography, Physical Geography Lab, Global Climate Change, Field Geography (Physical), Landforms, Senior Research Seminar in Geography.	SQU 334 jwanket@csus.edu (916) 278-7580

LECTURERS

Theodore Dingemans, PhD	Courses: Cultural Geography, Climate	SQU 332 (916) 278-6410
Laura McGowan, Ph.D.	Courses: Meteorology, Global Climate Change	SQU 332 mcgowan@csus.edu (916) 278-6410
Erika Ornouski	Courses: California Geography	SQU 332 (916) 278-6410
Marius Petraru, Ph.D.	Courses: Physical Geography, Physical Geography Lab, Cultural Geography	SQU 332 mpetraru@csus.edu (916) 278-6410
João Santos, Ph.D.	Courses: Landforms, Physical Geography	SQU 332 joao.santos@csus.edu (916) 278-6410
Jane Slavensky	Courses: Physical Geography Lab	SQU 332 jane.slavensky@csus.edu (916) 278-6410

What is Geography?

"Geography is the study of earth as the home of people."

Yi-Fu Tuan

DEFINITIONS

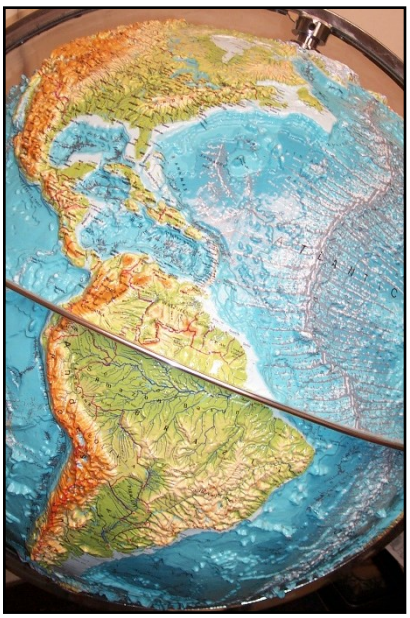
Geography explores the interrelationships between people and the Earth. To comprehend this human-environment interface, our students study climate, weather, landforms, water resources, plants and animals, and at the same time, peoples, societies, economies, and cities to reveal some of the biggest challenges of our time including climate change, resource degradation, urban growth and design, globalization, immigration, and ethnic and territorial conflict. Geography's approach to these issues emphasizes its interrelationships and spatial patterns, which overlap in intricate ways and give rise to distinctive places, environments, regions, and landscapes. Students work with a variety of data and tools, including traditional paper maps, Global Positioning Systems (GPS), Geographic Information Systems (GIS), and other computer applications to collect, display, and analyze spatial data. Geography's unique combination of knowledge and analytical techniques, produce a clear understanding of the interaction between the environment and people including human impacts on the environment and their effects on us.

As an integrative discipline, drawing on knowledge and data common to many physical sciences, social sciences, and even the humanities, geography encourages students to develop a spatial perspective to explore key issues facing society and the environment. Thus, geographers offer society, government, and academia a perspective that emphasizes the character of place, patterns and processes, and locational analysis. We contribute to a better understanding of today's world and provide options for a better one.

If you like to travel, use and read maps, learn about peoples and places, and collect and analyze data; then you are—in some ways—a geographer. If you are interested in teaching, exploring new landscapes, analyzing the relationships between people and their environment, using and applying new computer technologies, creating better places, or solving environmental problems, then geography is an ideal major.

Geography graduates are in demand. As the Association of American Geographer's pamphlet on Careers in Geography states, "more geographers than ever before are employed in exciting jobs, using skills in cultural, regional, and physical geography as well as modern technologies that have revolutionized the workplace."

AREAS OF GEOGRAPHIC STUDY



There are numerous subfields within the discipline of geography. Some of these include *human geography*, which studies the spatial aspects of human settlement, cultures, and human uses of the Earth's environments; *physical geography*, which studies spatial patterns, processes, and interrelationships in the natural environment; *regional geography*, which involves the study of human and physical geography within defined world regions. The methods used within the discipline include principles, techniques, and tools such as maps, aerial photographs, geographic information systems, remote sensing, global positioning systems, virtual globes, satellite imagery, and field instruments.

The Association of American Geographers lists a number of specialty groups (most of which are subfields) that their member geographers belong to. There are more subfields than the following list includes (and there are specializations within many of the following subfields. For example, the subfield of geomorphology can be broken into many specializations including fluvial geomorphology, glacial geomorphology, soils, and quaternary studies), but the list provides a peek into geography's breadth.

Africa
Animal
Applied Geography
Asian Geography
Bible
Biogeography
Business Geography
Canadian Studies
Cartography
China
Climate
Coastal and Marine
Communication
Cryosphere
Cultural and Political Ecology
Cultural Geography
Cyberinfrastructure
Development Geography
Disability
Economic Geography
Energy and Environment
Environmental Perception and Behavioral Geog
Ethics, Justice, and Human Rights
Ethnic Geography
European
Geographic Information Science and Systems
Geographic Perspectives on Women
Geographies of Food and Agriculture
Geography Education
Geography of Religions and Belief Systems
Geomorphology
Hazards, Risks, and Disasters
Health and Medical Geography
Historical Geography
History of Geography
Human Dimensions of Global Change
Indigenous Peoples
Landscape
Latin American
Middle East
Military Geography
Mountain Geography
Paleoenvironmental Change
Polar Geography
Political Geography
Population
Qualitative Research
Recreation, Tourism, and Sport

Regional Development and Planning
Remote Sensing
Rural Geography
Russian, Central Asian, and East European
Sexuality and Space
Socialist and Critical Geography
Spatial Analysis and Modeling
Study of the American South
Transportation Geography
Urban Geography
Water Resources
Wine

Your Program

"A map is the greatest of all epic poems. Its lines and colors show the realization of great dreams."

Gilbert Grosvenor

ADVISING

Geography students are assigned an advisor as soon as they become majors. You may change your advisor at any time. Academic Advising is required during each Fall semester before you register for Spring courses. Make appointments early to protect your priority registration. To schedule an appointment, contact your advisor. After you meet with your advisor, the academic hold will be lifted, and you may register for your Spring courses. If you wish to change your advisor, please contact the department coordinator.

THE DEGREE PROGRAM

The Geography Department offers a B.A. in Geography that features balanced preparation in physical and human geography, geographic skills and techniques, and regional study. Four concentrations within the major allow for specializations in human geography, physical geography, GIScience, and urban planning. The Department has two computer labs to support training in GIS, GPS, computer cartography, and remote sensing, and to allow students to pursue independent research projects. Available software includes ESRI's ArcGIS Pro. The department is home to the campus's Paleoecology Lab.

GEOGRAPHY COURSE OFFERINGS

Lower division courses at Sacramento State are those with course numbers below 100. Upper division undergraduate courses have course numbers between 100 and 199. The current listing of all courses offered in the Geography Department, along with their descriptions, can be found in the university catalog at https://catalog.csus.edu/courses-a-z/geog/.

Lower division offerings in physical geography, cultural geography, and geographical techniques introduce students to the discipline. At the upper division level, students choose among regional classes, topical classes ranging from meteorology to transportation, and technique classes that include GIS, map making, spatial analysis, remote sensing, and field work.

In the department's capstone course (Geog 190), majors display their geographic knowledge and skills via senior research projects. These projects, usually in the form of posters, are on display at the department's annual Poster-Palooza event.

DEGREE CONCENTRATIONS

All Geography majors are required to select at least one of four concentrations focusing on a particular subfield of geography. The four concentrations are:

- *Geographic Information Science* - The GIScience concentration gives students majoring in Geography a firm understanding of the theory and practice of GIS and other spatial analytical techniques. Students develop an understanding of geographic concepts and systematic approaches through completing the Department's standard lower division, core, and breadth coursework. Upper-division coursework ground students in basic GIScience concepts, and allow them to choose from electives that equip them with more specific analyses and output skills
- *Human Geography* - The Human Concentration gives students a broad, well-rounded understanding of the discipline of geography within the context of the social and human spheres of influence and interactions, and serves as an ideal basis of further graduate work.
- *Metropolitan Area Planning (MAP)* - Students choosing this path develop expertise in planning and development in metropolitan regions, working closely with various experts in the field through coursework and internships. A broad array of planning courses are offered in the Department by several faculty with expertise in the planning field.
- *Physical Geography* - Students choosing this path develop an intellectual foundation in the physical landscapes of Earth and interactions with people. Climate, weather, landforms, and the geographic patterns of life on Earth are points of focus in this concentration. The Paleoecology Lab provides opportunity for students to gain hands-on experience in physical geography field and laboratory techniques.

REGISTRATION TIPS

Here are several things to consider while determining which courses to take:

- Take GEOG 102: Ideas and Skills in Geography, the first Fall semester you are here. This course is designed for sophomores and juniors who have had one or more lower division geography courses. It introduces you to the broader discipline and it connects you to your cohort of fellow geography majors. **It is important to take this course in the first Fall semester of your junior year**.
- Take GEOG 3: Introduction to Maps and Geographical Technologies, the first year you are here.
- Take GEOG 109: Geographic Information Systems in your junior year. If you have little or no experience with GIS, we recommend that you take GEOG 3 first or concurrently with 109. **GIScience students should plan on taking this the first semester of their junior year**.
- Take Geog 118 in the first Spring semester of your junior year.
- For GIScience students, also take Geog 150 as soon as possible (preferably the fall semester of your junior year). It does not have a pre-req, and taking it early allows you more flexibility in scheduling subsequent courses.

- Since all students must complete 9 units of upper division GE coursework, consider taking one of the approved GE courses in Geography to cover Area 3, Area 4, and Area 5. These approved GE courses will count both for your major and for GE.
- Review the description of the four concentrations (see previous page) available within the major. Use the planning worksheet (included below) for your selected concentration to identify the classes you need. You can use this along with the expected semesters that courses are offered listed in the catalog to create a semester-by-semester plan for your degree. You may change your mind along the route, but it's helpful to have a plan from the beginning.
- You are assigned one of the full-time faculty members as your major advisor. Go see them once a semester to make sure you are on track. Every Fall semester is mandatory. The department coordinator can help you switch advisers, should you wish to do so.
- When it is your turn to register for classes and it appears that a geography class you want is full, contact the department coordinator (334 Sequoia Hall; (916) 278-6109, geography@csus.edu) to see if further information is available.
- Internships are highly recommended as part of your Sacramento State geography education. Sources of internship information are sent to you using your Sac State e-mail address. Your fellow students also are valuable resources in this regard.
- Interact with the faculty. Visit them in their offices not just to ask about what's going to be on the exam, but to talk about ideas! Their offices are on the 3rd floor of Sequoia Hall
- Check your Sacramento State e-mail early and often. Important communications from the administration (including the registrar), the department chair, internships, and your professors arrive via this medium.

GEOGRAPHIC INFORMATION SCIENCE (GISCIENCE)

BA in Geography, Concentration Planning Worksheet

Core Requirements

Course	Taken	Planned
Geog 1(GE:5A)		
Geog 2 (GE:4)		
Geog 3		
Geog 11 (GE:5C)		
Geog 102		
Geog 109*		
Geog 118		
Geog 190 (GE:WI)		

*Course must be completed with a minimum grade of C-

Regional Geography Elective (one of the following)

Course	Taken	Planned
Geog 121		
Geog 127 (GE:3)		
Geog 128		
Geog 129x		
Geog 131		
Geog 133 (GE:3)		

Concentration Requirements

Course	Taken	Planned
Geog 110*		
Geog 150*		
Geog 155*		

*Course must be completed with a minimum grade of C-

Techniques Elective (two of the following)

Course	Taken	Planned
Geog 105		
Geog 107		
Geog 151		
Geog 163		
Geog 181		
Geog 182		
Geog 193x		

Human Geography Elective (one of the following)

Course	Taken	Planned
Geog 141		
Geog 142		
Geog143 (GE:4)		
Geog 144		
Geog 145 (GE:4)		
Geog 147		
Geog 148		
Geog 149		
Geog 164		

Physical Geography Elective (one of the following)

Course	Taken	Planned
Geog 111 (GE:5A)		
Geog 113 (GE:5A)		
Geog 115 (GE:5A)		
Geog 116 (GE:5A)		
Geog 117		
Geog 160		
Geog 165(GE:5A)		

Sections of GEOG 195A or GEOG 199 with sufficient units and focused on relevant content may be substituted for a concentration course requirement with the consent of the major advisor and department chair.

Notes:

HUMAN GEOGRAPHY

BA in Geography, Concentration Planning Worksheet

Core Requirements

Course	Taken	Planned
Geog 1(GE:5A)		
Geog 2 (GE:4)		
Geog 3		
Geog 11 (GE:5C)		
Geog 102		
Geog 109		
Geog 118		
Geog 190 (GE:WI)		

Regional Geography Elective (one of the following)

Course	Taken	Planned
Geog 121		
Geog 127 (GE:3)		
Geog 128		
Geog 129x		
Geog 131		
Geog 133 (GE:3)		

Concentration Requirements

Human Geography Electives (four of the following)

Course	Taken	Planned
Geog 141		
Geog 142		
Geog143 (GE:4)		
Geog 144		
Geog 145 (GE:4)		
Geog 147		
Geog 148		
Geog 149		
Geog 164		
Geog 182, Geog 193A, or Geog 193B		

Additional Regional Geography Elective (one additional course)

Course	Taken	Planned
Geog 121		
Geog 127 (GE:3)		
Geog 128		
Geog 129x		
Geog 131		
Geog 133 (GE:3)		

Additional Human or Regional Elective
One additional course from either the Human Geography or Regional Geography elective lists

Physical Geography Elective (one of the following):

Course	Taken	Planned
Geog 111 (GE:5A)		
Geog 113 (GE:5A)		
Geog 115 (GE:5A)		
Geog 116 (GE:5A)		
Geog 117		
Geog 160		
Geog 165(GE:5A)		

Sections of GEOG 195A or GEOG 199 with sufficient units and focused on relevant content may be substituted for a concentration course requirement with the consent of the major advisor and department chair.

Notes:

METROPOLITAN AREA PLANNING (MAP)

BA in Geography, Concentration Planning Worksheet

Core Requirements

Course	Taken	Planned
Geog 1(GE:5A)		
Geog 2 (GE:4)		
Geog 3		
Geog 11 (GE:5C)		
Geog 102		
Geog 109		
Geog 118		
Geog 190 (GE:WI)		

Regional Geography Elective (one of the following)

Course	Taken	Planned
Geog 121		
Geog 127 (GE:3)		
Geog 128		
Geog 129x		
Geog 131*		
Geog 133 (GE:3)		

*Recommended for concentration

Concentration Requirements

Course	Taken	Planned
Geog 148		
Geog 182		

Human Geography Elective (three of the following)

Course	Taken	Planned
Geog 141		
Geog 142		
Geog143 (GE:4)		
Geog 144		
Geog 145 (GE:4)		
Geog 147		
Geog 149		
Geog 164		
ENVS 122		

Techniques Elective (one of the following):

Course	Taken	Planned
Geog 105		
Geog 107		
Geog 110		
Geog 150		
Geog 151		
Geog 155		
Geog 163		
Geog 181		
Geog 193A or 193B		

Physical Geography Elective (one of the following):

Course	Taken	Planned
Geog 111 (GE:5A)		
Geog 113 (GE:5A)		
Geog 115 (GE:5A)		
Geog 116 (GE:5A)		
Geog 117		
Geog 160*		
Geog 165(GE:5A)		

* Recommended for concentration

Additional Recommended Courses:

- Econ 132
- Econ 180
- Hist 163
- Hist 184/Art 188B
- RTPA 154

Sections of GEOG 195A or GEOG 199 with sufficient units and focused on relevant content may be substituted for a concentration course requirement with the consent of the major advisor and department chair.

Notes:

PHYSICAL GEOGRAPHY

BA in Geography, Concentration Planning Worksheet

Core Requirements

Course	Taken	Planned
Geog 1(GE:5A)		
Geog 2 (GE:4)		
Geog 3		
Geog 11 (GE:5C)		
Geog 102		
Geog 109		
Geog 118		
Geog 190 (GE:WI)		

Regional Geography Elective (one of the following)

Course	Taken	Planned
Geog 121		
Geog 127 (GE:3)		
Geog 128		
Geog 129x		
Geog 131		
Geog 133 (GE:3)		

Concentration Requirements

Physical Geography Electives (five of the following):

Course	Taken	Planned
Geog 111 (GE:5A)		
Geog 113 (GE:5A)		
Geog 115 (GE:5A)		
Geog 116 (GE:5A)		
Geog 117		
Geog 160		
Geog 165(GE:5A)		
Geog 193C		

Human Geography Elective (one of the following)

Course	Taken	Planned
Geog 141		
Geog 142		
Geog143 (GE:4)		
Geog 144		
Geog 145 (GE:4)		
Geog 147		
Geog 148		
Geog 149		
Geog 164		

Techniques Elective (one of the following):

Course	Taken	Planned
Geog 105		
Geog 107		
Geog 110		
Geog 150		
Geog 151		
Geog 155		
Geog 163		
Geog 181		
Geog 182		
Geog 193A		
Geog 193B		

Sections of GEOG 195A or GEOG 199 with sufficient units and focused on relevant content may be substituted for a concentration course requirement with the consent of the major advisor and department chair.

Notes:

GEOGRAPHY MINOR WORKSHEET

Students from other majors can obtain a minor in Geography by completing 18 units as approved by the minor advisor. Courses must be selected in consultation with and approved by a faculty advisor in Geography. A minimum of 6 upper division units must be earned in residence.

Two of the following lower division courses:
Geog 1 Physical Geography: The Distribution of Natural Phenomena
Geog 2 Cultural Geography
Geog 3 Introduction to Maps and Geographic Technologies
Nine units of upper division Geography, excluding GEOG 194, GEOG 195, GEOG 198, & GEOG 199.
Three additional units in Geography, either lower division or upper division.

GEOGRAPHIC INFORMATION SYSTEMS MINOR WORKSHEET

Students from other majors can obtain a minor in Geographic Information Systems by completing 18 units as approved by the minor advisor. Courses must be selected in consultation and approved by a faculty advisor in Geography. A minimum of 6 upper division units must be earned in residence.

Courses in parentheses are prerequisites.

Required Courses
Geog 3 Introduction to Maps and Geographic Technologies
Geog 109 Geographic Information Systems
Geog 110 Advanced Geographic Information Systems (Geog 109)
Geog 150 Programming for GIS
Geog 155 GIS Data Acquisition and Management

Select one of the following:
Geog 105 Computer Cartography (Geog 109)
Geog 107 Remote Sensing
Geog 151 Programming for GIS II (Geog 150)
Geog 163 Applied GIS (Geog 109)
Geog 181 Quantitative Methods in Geography
Three units of upper division GIS coursework from another department with permission of the GIS Minor advisor.

CERTIFICATE IN GEOGRAPHIC INFORMATION SYSTEMS WORKSHEET

Open to all degree-seeking students at Sacramento State University.
To receive the Certificate in Geographic Information Systems, students must:

- be working towards a degree at Sacramento State
- achieve a minimum 2.5 cumulative GPA in certificate program courses:

Courses in parentheses are prerequisites.

Required Courses

Geog 109	Geographic Information Systems
Geog 155	GIS Data Acquisition and Management

Select two of the following:

Geog 105	Computer Cartography (Geog 109)
Geog 107	Remote Sensing
Geog 110	Advanced Geographic Information Systems (Geog 109)
Geog 150	Programming for GIS
Geog 151	Programming for GIS II (Geog 150)
Geog 163	Applied GIS (Geog 109)

GRADUATE MINOR IN GEOGRAPHIC INFORMATION SYSTEMS MINOR WORKSHEET

Prospective students must be admitted to a graduate program at the university and must maintain satisfactory progress towards their primary graduate program. A letter of support from their graduate advisor is required. Students may need to fulfill specific prerequisites for GIS courses.

A grade of "B-" or better is required in each course listed for the graduate minor, with a minimum cumulative GPA of 3.0.
Required Courses

GEOG 209	Geographic Information Systems (or prior undergraduate coursework equivalent to Geog 109)
GEOG 210	Spatial Analysis in GIS (Geog 109/209)
GEOG 250	Programming for GIS
GEOG 255	GIS Data Acquisition and Management (Geog 109/209)

GENERAL EDUCATION CATEGORY COMPARISIONS

Beginning in Fall 2025, the General Education (GE) requirement categories were realigned to create a common set of GE requirements across California Community Colleges, the University of California system, and the California State University System. These categories now apply to all GE classes at Sacramento State moving forward. But you can use the table below to see which of the former GE categories fulfill the requirements of the new GE categories:

GE COMPARISON TABLE

Current GE Categories	**Prior GE Categories (before Fall 2025)**
1A: English Composition	A2: Written Communication
1B: Critical Thinking	A3: Critical Thinking
1C: Oral Communication	A1: Oral Communication
2: Mathematical Concepts and Quantitative Reasoning	B4: Mathematical Concepts and Quantitative Reasoning
3A: Arts	C1: Arts
3B: Humanities	C2: Humanities
4: Social and Behavioral Sciences	D: The Individual and Society
5A: Physical Sciences	B1: Physical Science
5B: Life Sciences	B2: Life Forms
5C: Laboratory	B3: Lab
6: Ethnic Studies	F: Ethnic Studies

INTERNSHIPS

Our location as the state's capital provides students with a wide range of government resources (federal, state, and local) on which to draw, as well as the opportunity for internships with diverse public agencies. These internships can provide excellent "real world" training opportunities and possible subsequent permanent employment. In addition, some geography courses include opportunities for community engagement.

Internships can also provide a valuable way to obtain on-the-job experience (place it on your resume), contact with employers, and it can give you a sense of what you want to do after graduation. A good internship allows you to be part of the agency or organization's day-to-day activities. Finally, internships are important because you are more employable after this experience.

Talk with your major advisor to explore internship possibilities. Check your Sacramento State e-mail for internship and job opportunities. When times are economically good, we send out quite a few of these announcements. In addition, you can go to the career center in Lassen Hall 1013 for information on career advising. They can help you with finding internships, volunteer experiences, and part-time jobs. They also help with developing resumes and cover letters. Also, you can go directly to government agencies, organizations, and local companies that interest you and inquire about internships. In this situation, you should provide the name of a faculty member as a reference, an updated resume, and, in many cases, you should volunteer your services.

SCHOLARSHIPS

JACK MROWKA MEMORIAL SCHOLARSHIP

The Geography Department awards the Mrowka Scholarship to one or more students each semester to acknowledge their outstanding scholarship and academic achievement. This $2,000 award is given in memory of Jack Mrowka, a Professor and Chair of the Geography Department who passed away in July 2002.

GALE GAULT MEMORIAL SCHOLARSHIP

The Geography Department awards the Gale Gault Memorial Scholarship to one student each year to encourage the promotion of women in the field of geography. The $1,000 award is given in memory of Gale Gault, a Sacramento State Geography graduate from the class of 1984.

GEOGRAPHY STUDENT CONFERENCE FUND

The Geography Department offers funds to support student participation in academic conferences and professional development activities, including travel, registration, or other related costs. Please contact the department chair with questions on the use of these funds.

Geography's Facilities

> "The principle training of the geographer should come, wherever possible, by doing fieldwork."
>
> *Carl Sauer*

The Department has multiple labs that support teaching, research, and training. Two computer labs support our geotechnology emphasis in GIS, GPS, computer cartography, and remote sensing, and they allow students to pursue independent research projects. Available software in these labs include ESRI's ArcGIS (including 3-D, Network Analyst and Spatial Analyst extensions) and ERDAS remote sensing programs. The Department also hosts the campus's Paleoecology Lab, but perhaps the most important facility is found outside—in the field.

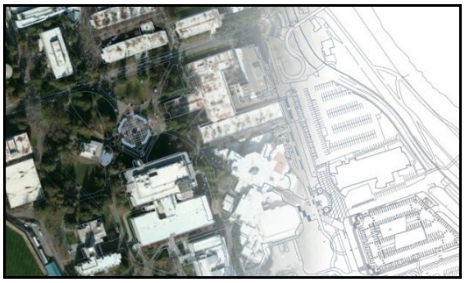
THE FIELD

Our location in Sacramento provides our field courses access to a wide range of landscapes and environments relating to urban, rural, and physical geography. Our Geography program emphasizes many educational goals and objectives including one that gives students field experience in as wide a variety of natural and cultural environments as possible. We hope to instill in students the skill of observation and an appreciation for the importance of working with other cultures in a variety of places to ensure the understanding of environmental and cultural relationships and processes.

Fieldwork is often fundamental to the way geographers perceive, research, and understand the world. As former AAG President Patricia Gober (1998, "Distance Learning and Geography's Soul." *Association of American Geographers Newsletter*. May 1998. 33:5. page 2) states, "Most geographers have a deep connection with places, one that has drawn us to the field, one that we communicate to students, and one that binds us together as an intellectual community." For this reason, the field is considered our most important laboratory.

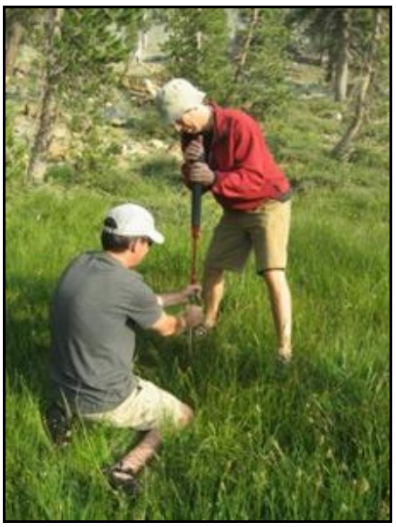
GISCIENCE LABS

The Geography Department's GIScience labs support teaching and research with geotechnologies including geographic information systems, remote sensing, and global positioning systems. These labs are hands-on, exploration-based, multimedia-learning environment where students gain personal experience with ideas, concepts, and problem solving. Computer techniques make some complex processes (like



analytical modeling, non-linear and spatial correlation, layering, diffusion, and cartographic representation) easier to understand, and give students direct experience in applying concepts to problem-solving exercises. This approach to learning is consistent with broader educational shifts. The labs support and encourage the use of computer technology in all aspects of geographic research including data collection, storage, management, analysis, and display. The labs are located at 5027 Tschannen Science Complex and 311K Sequoia Hall.

PALEOECOLOGY LAB



The Department also hosts the campus's Paleoecology Laboratory, which is located on the 3rd floor of Sequoia Hall (326A). Established in 2004, the mission of the laboratory is to conduct environmental research to further our understanding of past and present physical landscapes and to promote student education and research. The lab emphasizes sediment core research and tree-ring research.

The Paleoecology Lab allows motivated students hands-on experience in field sampling techniques and laboratory processing and analysis of various environmental data.

STUDY ABROAD

Studying abroad enriches both your geography degree but also your life in many ways:

- You enhance your education by adding a new, international perspective to your studies.
- You develop first-hand knowledge of other peoples, places, and environments.
- You may earn more career options. Your international experience provides a strong professional advantage that many businesses are looking for.
- You may improve your foreign language abilities.
- You broaden your perspective on U.S. society and yourself.
- You experience personal growth, especially in the areas of independence and self-confidence.

If you think you cannot afford it than think again. Many program costs are comparable to the costs of studying here and financial aid applies.

If you think you might be interested, take the following steps:

Step One: Ask yourself the following questions:

- Why am I interested in studying abroad?
- Where do I want to study?
- How long do I want to study abroad – academic year, semester, summer?
- Do I want to study a particular subject while abroad?
- Do I want to fulfill requirements for your major or minor?

- Do I know any languages other than English, or am I interested in learning another language?
- Is cost a significant factor in my program selection?

Step Two: Research the various programs that are available.

Step Three: Talk with your geography advisor about the program that most interests you.

Step Four: Attend a General Information Study Abroad Session. Information sessions provide an introduction to study abroad and an overview of options for Sacramento State students.

Step Five: Make an appointment to talk to a Study Abroad Coordinator. You will work together to define and clarify your goals and program needs, and to select a program on the basis of your qualifications and interests. Once you have selected the appropriate program, you can begin the application process.

Step Six: Talk again with your advisor, but this time you will focus on course selection. We try to match the courses that you need for your degree and those that are offered abroad. This selection process will also involve the department chair.

Step Seven: Get one or two recommendations from a professor. You must, however, have taken a class with the professor recommending you.

Step Eight: Prepare for your interview(s) with faculty members. It is advised to be knowledgeable of current events for the country you are interested in, as well as its political system, popular culture, and history.

Life After Sac State

> "During the next decade geography will move to center stage in our society as mobile, real-time, interactive geographic technologies and systems are adopted…in most large-scale private and governmental organizations…"
>
> *Doug Richardson*

OCCUPATIONS

The Association of American Geographer's (AAG) brochure titled Careers in Geography lists three primary job market sectors for geographers: education, government, and the private sector.

Education…needs K-12 teachers with solid geography backgrounds, since all states have recently introduced higher standards for geography instruction. At the college level, exciting new courses attract large numbers of students, and the demand for faculty with regional specialties or theoretical and research capabilities is strong.

All levels of government…hire geographers. They may work for local and state economic development or planning offices, conduct research in recreation and park use, or map land use from satellite images. Many geographers at the federal level work for the National Imagery and Mapping Agency, the Environmental Protection Agency, the Central Intelligence Agency, the U.S. Geological Survey, and the Department of State.

Private sector firms…need geographers who can develop and apply geographic ideas and technologies to complex real world systems. Geographers also conduct marketing studies, plan transportation routes, understand international markets, and determine environmental risks associated with site locations. From transportation agencies to electric utility companies, and from forestry to telecommunications, real-time mobile interactive geographic technologies and databases are emerging as the backbone of large-scale operations management systems for industries with distributed assets and mobile workforces.

For more information, talk with your major advisor and visit the AAG's webpage at www.aag.org and their career page at http://jobs.aag.org/home/index.cfm?site_id=15004.

Students who have graduated from Sacramento State with a BA in Geography have found employment in a variety of careers. The following is a partial list of companies and government agencies that have hired some of our recent graduates.

Alza Corporation
American Conservation Experience
American River College
Apple
ARCAIS
BAE Systems
BNSF Railway
Brown and Caldwell
California Air Resources Board
California Department of Conservation

California Department of Fair Employment & Housing
California Department of Fish & Game
California Department of Food & Agriculture
California Department of Forestry & Fire Protection
California Department of Pesticide Regulation
California Department of Resource Recycling & Recovery (CalRecycle)
California Department of Technology
California Department of Transportation (CalTrans)
California Department of Water Resources
California Division of Boating & Waterways
California Energy Commission
California Governor's Office of Emergency Services
California State Parks
California State University - Sacramento
Cardno
CH2M Hill
City of Elk Grove
City of Folsom
City of Manteca
City of Rancho Cordova
City of Rocklin
City of Roseville
City of Sacramento
City of San Jose
City of Vacaville
City of West Sacramento
County of Del Norte
County of Nevada
County of Sacramento
County of San Mateo
County of Sonoma
County of Yolo
County of Yuba
Drake Haglan & Associates
Elk Grove Water District
EN2 Resources Inc.
Energy Absorption Systems Inc.
Environmental Protection Agency
Environmental Systems Research Institute (ESRI)
Facebook
Federal Emergency Management Agency
Federal Reserve Bank of San Fransisco
Frontline Energy Services
Global Earthquake Model
Granite Construction
ICF International
Institute of Ecohydrology Research
Institution of Transportation Engineers
Integrated Computer Solutions
Keller Williams Realty
KIRA
Land IQ
Los Rios Community College District
Michael Baker International
Micron Technology
MST Architects
Natural Lands Trust
North Coast Regional Water Quality Control Board
OHSU
Pacific Crest Trail
Pacific Gas & Electric Company (PG&E)
Placer County Water Agency
Pristine Sun LLC
Quantum Spatial
Sacramento Area Council of Governments (SACOG)
Sacramento Regional Fire
San Diego State University
San Joaquin Council of Governments
SCI Consulting Group
Shell
Sierra College
Sierra Nevada Brewing Company
SMUD
Solano County Water Agency
Southgate Recreation & Park District
Stanislaus Council of Governments
State of California Franchise Tax Board
Stockton Unified School District
Strategic Economics
Sutter Health
Tahoe Conservancy
Teichert Materials
Trimble
University of California - Davis
UPS

URS Corporation
US Army Corps of Engineers
US Bureau of Land Management
US Bureau of Reclamation
US Department of Agriculture
US Environmental Protection Agency
US Forest Service
US Geological Survey (USGS)
Versight Inc.
Walk Sacramento

GRADUATE SCHOOL

Graduate school provides geography students with more options. It can help you attain a high-level position or enable you to teach at the college level. In addition, graduate school increases your knowledge of the world, exposes you to new ideas and theories, provides you with the opportunity to work with the best and latest geographic technology, and offers you the chance to work closely with professors on research topics.

As you think about careers that you might want to enter, you should think about whether graduate school is a part of your long-range plan. Talk it over with others and your professors. If you decide to pursue graduate school, here are several steps and considerations to selecting an appropriate graduate school.

What type of geography interests you? Being interested broadly in geography is great, but this will not help you in graduate school. Pick a subfield that greatly interests you, and we are not referring to the broad categories physical, human, or geotechnologies. Select something more specific like ethnic, political, social, urban, climatology, biogeography, etc. It will even help your chances if you could make it more specific than that.

Talk with your professors and your major advisor by the end of your junior year, even if you do not plan to attend graduate school for a couple of years.

Read the literature, especially the recent literature, of your chosen subfield. What articles or books most impressed you? If the authors are professors, where do they teach or conduct research? You should consider those universities.

Look at the AAG's Guide to Geography Departments (we have a Department copy) and pay particular attention to what other departments specialize in and the specializations of individual professors. Add those institutions to your list.

Look at the home pages of the universities on your list. What do they have to offer that interests you? Check out faculty web pages. Go back to Step 3 and read the literature of other professors that interest you.

Talk with the professors that interest you the most. Perhaps start with an e-mail, but do not simply praise their work. Give them specific details about their research that you liked. Ask them questions that derive from their work. If they answer you, reply with a thank you e-mail and state that you would like to come out and look at the department as a possible location for graduate school.

Most graduate schools require that you take the GRE or another entrance examination. Your scores must reach a certain level. Think about taking it twice to get the best scores possible.

High grade point averages and examination scores increase your likelihood of admission to a graduate program, but contacts and letters of recommendation are also important.

You should select a few potential graduate schools based on a careful analysis of your academic interests and abilities and the university's reputation, expertise, and cost. Apply to at least two or three universities. Choices narrow down quickly as one gets an offer with a teaching assistantship while others offer no funding.