

Geography

College of Social and Behavioral Sciences

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Faculty

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Emeritus Faculty

James Allen, William Bowen, Robert Gohstand, Robert Howard, Antonia Hussey, Phillip Kane, Gordon Lewthwaite, C. Gary Lobb, Elliot McIntire, Ralph Vicero, I-Shou Wang

Programs

Undergraduate:

B.A., Geography

Minor in Geography

Graduate:

M.A., Geography

Department Programs

The geography degree program prepares students to understand the environment around us and interpret the patterns found across earth's surface. Comprised of 43 units, the geography major allows flexibility in course selection while providing solid background in human, physical, and regional aspects of the discipline. The major also features a strong technical component based on applications of geographic information science (GIS), cartography, and remote sensing; along with training in geographical analysis and data presentation. The M.A. program provides advanced training leading to further graduate work in geography, or to employment in teaching, industry, or government. The department also offers a University Certificate Program in GIS. For information please check our website listed above or see a departmental advisor.

Academic Advisement

Undergraduates must consult with an advisor as soon as they declare geography as their major and before registration each semester. Graduate students must consult with the graduate advisor before registering for classes. Contact Darrick Danta for undergraduate advisement and James Craine for questions about graduate study.

Student Learning Outcomes

We strive to help our students become persons of intellectual maturity by building a solid foundation of knowledge concerning the discipline of geography, the main features of earth's environment, and the various processes giving rise to these features; developing skills necessary to access, acquire, and synthesize new information and ideas so as to become lifelong learners; establishing understanding of the theories, tools, and techniques necessary to become effective problem solvers; and finally practicing the facilities needed to become articulate communicators of their knowledge, opinions, and ideas.

Careers

A CSUN geography degree can launch your career in a number of fields, some examples of which are geographical analyst working for major corporations, consultant for environmental firms, GIS administrator in either government or industry, or teacher in K-12. The degree can also provide a foundation for pursuing advanced or professional degrees in social, environmental, or physical sciences or in law.

Skills

Technical skills taught in Geography include computer mapping, field observation and data collection, GIS, Global Positioning Systems (GPS), land-use analysis, map analysis, presentation graphics, professional report writing, sediment analysis, statistics, topographic surveying, and weather station instrumentation.

Requirements for the Bachelor of Arts Degree

The Geography Major shall consist of the following requirements (43 units total)

1. Lower Division Courses

Foundation Courses (6 Units) Take the following courses:

GEOG 101 The Physical Environment (3)
 or GEOG 103 Weather (3)
 and GEOG 107 Human Geography (3)
 or GEOG 150 World Geography (3)

2. Upper Division Courses (37 Units)

Gateway Course (3 Units) Take the following course:

GEOG 300 The Geographer's Craft (3)

3. Field Studies (1 Unit)

Select one course from the following:

GEOG 404A-Z Field Studies in Geography (1-3)

4. Content Courses (6 Units)

Select two courses from the following:

GEOG 301 Cultural Geography (3)
 GEOG 303 Environmental Geography (3)
 GEOG 311 Atmosphere (3)
 GEOG 340 Economic Geography (3)
 GEOG 351 Urban Geography (3)
 GEOG 364/L Geography of World Ecosystems (2/1)
 GEOG 365/L Geomorphology (3/1)
 GEOG 366 Geography of Environmental Hazards (3)

5. Method Courses (6 Units)

Select two courses from the following:

GEOG 206/L Introduction to GIS and Lab (2/1)
 GEOG 304/L Map and Imagery Interpretation and Lab (2/1)
 GEOG 305/L Maps and Graphics and Lab (2/1)
 GEOG 306/L Intermediate GIS and Lab (2/1)
 GEOG 360/L Introduction to Spatial Analysis and Lab (2/1)

6. Regional Course (3 Units)

Select one course from the following:

GEOG 318 Europe (3)
 GEOG 321 United States (3)
 GEOG 322 Latin America (3)
 GEOG 323 Canada (3)
 GEOG 324 China (3)
 GEOG 326 Africa (3)
 GEOG 328 Mexico (3)
 GEOG 330 California (3)
 GEOG 334 Southwest Pacific (3)
 GEOG 350 Metropolitan Los Angeles (3)

7. Application Courses (6 units)

Select two courses from the following:

GEOG 402/L Field and Lab Techniques in Physical Geography and Lab (1/2)
 GEOG 406/L Advanced GIS and Lab (2/1)
 GEOG 408A/L Human/Cultural Applications in GIS and Lab (2/1)
 GEOG 408B/L Environmental/Physical Applications in GIS and Lab (2/1)

GEOG	409/L	Computer Mapping and Lab (3/1)
GEOG	411	World Climate (3)
GEOG	412	Boundary Layer Climatology (3)
GEOG	413	Bioclimatology (3)
GEOG	414	Hydroclimatology. (3)
GEOG	415	Air Pollution (3)
GEOG	416	Global Warming (3)
GEOG	444	Conservation (3)
GEOG	451	Advanced Urban Geography (3)
GEOG	452	Urban Land-Use Planning (3)
GEOG	453	Housing and Community Development (3)
GEOG	459	Environmental Impact Studies (3)
GEOG	460/L	Spatial Analysis and Comparison and Lab (2/1)
GEOG	462/L	Computer Applications in Geography and Lab (2/1)
GEOG	465/L	Fluvial Geomorphology and Lab (2/1)
GEOG	466/L	Glacial and Periglacial Geomorphology and Lab (2/1)
GEOG	467/L	Arid Lands Geomorphology and Lab (2/1)
GEOG	468/L	Coastal Geomorphology and Lab (2/1)
GEOG	482	Population Geography (3)
GEOG	486	Medical Geography (3)
GEOG	487	Geography of Popular Culture (3)
GEOG	494	Internship (3)
GEOG	497A-F	Senior Seminar in Geography (3)

8. Capstone Course (3 Units)

Take the following course:

GEOG	490	Senior Project (3)
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9. Elective Courses (9 Units)

Take three additional Upper Division (300 or 400-level) geography courses.

Total Units in the Option	43
General Education Units	52
Additional Units	19
Total Units Required for the Degree	120

Minor in Geography

A minor in geography shall be comprised of 20 units with no more than 6 units in the lower division. The student must consult with a geography advisor to develop an approved program best suited to the student's individual needs. A program may be selected which will provide the student with exposure to several of the major realms of geography or emphasis in one particular aspect of geography (e.g., geomorphology, GIS, climatology, cultural, economic, ecology, cartography, urban).

Total Units Required for the Minor	20
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Social Science Subject Matter Program for the Single Subject Credential

Geography majors interested in teaching social studies at the middle school or high school level may combine their major program with the Single Subject Social Science Subject Matter Program to meet requirements for entering a Single Subject Credential Program. For information on the CSBS Single Subject Social Science Subject Matter Program, look under Social and Behavioral Sciences in this Catalog. The Geography Undergraduate Advisor can also provide assistance in coordinating the completion of both the major and the subject matter program simultaneously.

The Master of Arts in Geography

The Department of Geography offers two options within the Master of Arts degree program. Option 1, the Standard Program, provides the student with a high degree of flexibility in the selection of courses used to meet the program requirements. Courses may be selected from any of the graduate offerings in geomorphology, climatology, plant geography, economic geography, cultural geography, urban geography, regional geography, cartography, and geographic information science. This option prepares students for advanced Ph.D. study, community college teaching, and professional careers in business, government, or industry. Option 2 offers a highly structured specialization in Geographic Information Science, where most of the requirements are met with graduate courses dealing with various aspects of GIS. This option is designed for students wishing to pursue a career in this highly technological subfield of geography.

A. Requirements for Admission to the Department

- One of the following:
 - Cumulative undergraduate GPA of 3.00 or better.
 - A score at or above the 50th percentile on two of the three portions of the aptitude test of the Graduate Record Exam.
 - A graduate degree in another field from CSUN or another accredited institution.
- At least a 2.75 GPA in the last 60 units attempted.
- Two letters of Recommendation.
- Demonstration of research and writing skills. You must submit to the Graduate Committee a sample research paper, written in English, and preferably one that was completed as part of your baccalaureate degree requirements, such as a senior thesis or other research paper done in an upper division undergraduate course. Because of the importance of research and writing to our graduate program, the Committee needs to be assured of your abilities and promise in these areas.

B. Classified and Conditionally Classified Status

Requirements for Classified Status, one of the following:

- An undergraduate major in Geography
- Demonstrated competence in human geography, physical geography, and cartography or map interpretation, as determined by the departmental Graduate Committee.
- A passing score (8 or higher) on the Upper Division Writing Proficiency Exam (UDWPE).

Conditionally Classified Status

- If the requirements for classified status are not met at the time of application, the student will be admitted as Conditionally Classified, pending completion of the requirements, which include the completion of prerequisite courses in the areas of identified deficiencies and/or the UDWPE.
- No more than 12 units of work taken prior to attaining Classified status may be applied to the Master's Program.

Requirements for the Degree

A. Option 1: Geography/Standard Program

- Completion of the following courses (a total of 30 units, with a GPA of 3.00 or better)

Introductory Seminar

GEOG 600 Geographic Thought, Analysis and Research (3)
 Additional Seminars (five 600-level courses): (15 units)
 Electives (400 or 600-level courses with approval) (6)

Thesis Preparation:

GEOG 696 Directed Geographic Research (3)
and GEOG 697 Directed Comprehensive Studies (3)
or GEOG 698 Thesis (3)

2. Competence in a relevant foreign language, statistics, or an advanced geographic technique.
3. Submission of a thesis or comprehensive exam approved by a departmental faculty committee.

B. Option 2: Geography/Geographic Information Science Specialization Program

1. Completion of the following courses: a total of 30 units with a GPA of 3.00 or better.

Introductory Seminar

GEOG 600 Geographic Thought,

Analysis and Research

Seminars in Geographic Visualization (9 units)

Select three courses from 690 A-H, 695A

Other 600-level seminar

Additional GIS Courses (Select any two 400-level courses, as specified below (6 units):

GEOG 406	Advanced GIS (3)
GEOG 407/L	Remote Sensing/Lab (3)
GEOG 408A/L	Human/Cultural Applications in GIS/L (3)
GEOG 408B/L	Environmental/Physical Applications in GIS/L (3)
GEOG 409	Computer Mapping/Lab (4)

Statistics (3 units)

GEOG 460/L Spatial Analysis and Comparison/Lab (3)

Thesis Preparation:

GEOG 696 Directed Geographic Research (3)
and GEOG 697 Directed Comprehensive Studies (3)
or GEOG 698 Thesis (3)

2. Submission of a thesis or comprehensive exam approved by a departmental faculty committee.

Total Units of Graduate Work Required for the Degree	30
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Course List

GEOG 101. The Physical Environment (3)

Study of the natural environment; nature, distribution, and relationships of climate, landforms, vegetation, hydrology, and soils. (Available for General Education, Natural Sciences)

GEOG 102. Physical Geography Lab (1)

Corequisite: GEOG 101 or equivalent. Observations, experiments, and demonstrations designed to familiarize students with techniques utilized by physical geographers. Three hours lab. May be used to satisfy the lab requirement in the Natural Science Section of General Education.

GEOG 103. Weather (3)

Study of atmospheric processes. (Available for General Education, Natural Sciences)

GEOG 105. Weather Lab (1)

Corequisite: GEOG 103. Observations, experiments, and demonstrations designed to familiarize students with the nature of California's weather and climate. May be used to satisfy the lab requirement in the Natural Science Section of General Education. Three hours lab per week.

GEOG 106LRS. The Physical Environment for Liberal Studies Majors (3)

Study of the natural environment; nature, distribution and relationships of climate, landforms, vegetation, soils, water bodies, and the solar system. (Available for Earth Science credit for Liberal Studies Majors)

GEOG 107. Introduction to Human Geography (3)

Examines the patterns and processes of human occupation of the earth, with a focus on the United States. Topics such as population, agriculture, language, religion, ethnicity, politics, and economics are covered using the tools, methods and perspective of the geographer. (Available for General Education, Social Sciences)

GEOG 150. World Geography (3)

Geographical survey of the world's major regions with emphasis on those features important to an understanding of current global concerns and problems. (Available for General Education, Social Sciences)

GEOG 206/L. Introduction to Geographical Information Science and Lab (2/1)

Corequisite: GEOG 206L. Introduction to basic principles of geographical information science (GIS), including data gathering, analysis, and display through digital methods. Introduction to examples of how GIS is currently being used to answer spatial questions on environmental and social issues. Lab demonstrates these principles through operation of a GIS package on microcomputers. Two hours lecture; three hours lab. (Available for General Education, Lifelong Learning) (IC)

Upper Division

GEOG 300. The Geographer's Craft (3)

Introduction to geography as a discipline, emphasizing its approach to analysis and problem solving, resources for conducting geographic research, methods for answering geographic questions, and techniques for communicating insights.

GEOG 301. Cultural Geography (3)

Prerequisites: A lower division course in the social sciences; completion of the lower division writing requirement. Study of the literature, traditions, and theories dealing with the human-environment relationship and an analysis of the approaches used by cultural geographers to elucidate the nature of this relationship. Major themes are the cultural landscape, cultural ecology, and environmental perception. (Available for General Education, Social Sciences)

GEOG 303. Environmental Geography (3)

Examination of human impact on the environment over a local, regional, and global spatial scale. Emphasis will be placed on identifying the historical and contemporary impact of humans on the natural environment (landscapes, animals, oceans, and climate).

GEOG 304/L. Map and Imagery Interpretation (2/1)

Prerequisite: GEOG 101 or 150. Corequisite: GEOG 304L. Introduction to reading maps and interpreting aerial imagery. Emphasis on making simple measurements from maps and imagery, techniques of interpreting the physical and cultural landscape, and elementary map making. Two hours lecture; two hours lab.

GEOG 305/L. Maps and Graphics, and Lab (2/1)

Corequisite: GEOG 305L. Preparatory: A lower division course in geography or another relevant field. Design, use and preparation of maps and graphs. Two hours lecture; two hours of lab.

GEOG 306/L. Intermediate Geographical Information Science and Lab (2/1)

Prerequisite: GEOG 206/L or instructor consent. Corequisite: GEOG 306L. Covers principles of geographic data acquisition, processing, and display through digital methods. Introduction to spatial data structures and grid-based applications of GIS. Labs offer hands-on experience with MapInfo and ArcView. Two hour lecture; two hours lab.

GEOG 311/L. The Atmosphere and Lab (3/1)

Prerequisites: GEOG 101, or 103, or ASTR 152 or GEOL 100 or 110 or 122; completion of the lower division writing requirement. Explanations of rain, wind, smog, etc. Basic principles of energy transfer. Three hours lecture, three hours lab. (Available for General Education, Natural Sciences)

GEOG 318. Europe (3)

Prerequisite: Completion of the lower division writing requirement. Examination of the physical, historical, cultural, economic, and political factors that have shaped the contemporary European landscapes. (Available for General Education, Comparative Cultural Studies)

GEOG 321. United States (3)

Prerequisites: A lower division course in the social sciences; completion of the lower division writing requirement. Regional and cultural geography of the U.S. emphasizing human-environment interaction and the evolution of contemporary geographical patterns of population distribution, resource exploitation, transportation, and agricultural and industrial production. (Available for General Education, Social Sciences)

GEOG 322. Latin America (3)

Prerequisite: Completion of the lower division writing requirement. Spatial and ecological survey of the environment, cultures, economies, and societies of the Latin American nations. Emphasizes the changing settlement geography and pays special attention to Brazil and the Andean countries. (Available for General Education, Comparative Cultural Studies)

GEOG 323. Canada (3)

Prerequisite: Completion of the lower division writing requirement. Analysis of Canada's regional geographic structure with emphasis on the changing cultural, economic, and political geography. Stresses geographic interrelationships with the U.S. (Available for General Education, Comparative Cultural Studies)

GEOG 324. China (3)

Prerequisite: Completion of the lower division writing requirement. Geographical analysis of the peoples and culture of China, emphasizing features important to an understanding of China's cultural and regional diversity and contemporary problems. (Available for General Education, Comparative Cultural Studies.)

GEOG 326. Africa (3)

Prerequisite: Completion of the lower division writing requirement. Geographical analysis of the peoples and cultures of Africa, emphasizing features important to an understanding of Africa's cultural and regional diversity and contemporary problems. (Available for General Education, Comparative Cultural Studies)

GEOG 328. Mexico (3)

Prerequisite: Completion of the lower division writing requirement. Geographical analysis of Mexico, emphasizing features important to an understanding of Mexico's regional and cultural diversity and contemporary problems. (Available for General Education, Comparative Cultural Studies)

GEOG 330. California (3)

Prerequisites: A lower division course in the social sciences and completion of the lower division writing requirement. Examination of the geography of California emphasizing the evolution of contemporary patterns of population and settlement, resource exploitation, and human-environment interaction. Focuses on the regional variation and diversity of the State's geography. (Available for General Education, Social Sciences)

GEOG 334. Southwest Pacific (3)

Prerequisite: Completion of the lower division writing requirement. Cultural and regional geography of Australia, New Zealand, and the islands of Melanesia, Micronesia and Polynesia.

GEOG 340. Economic Geography (3)

Prerequisite: A lower division course in Geography or ECON 160 or 300. Principles governing spatial organization of society. Theoretical and empirical approaches to location of urban and rural settlement and economic activities. Spatial structures, their interrelationship, and changes in organization.

GEOG 345. The Geography of Tourism (3)

Prerequisite: A lower division course in the social sciences and completion of the lower division writing requirement. Examination of the spatial patterns of the various forms of tourism and its impact on select world regions. Topics covered in this course include: host-guest relations, the cultural and economic impacts of tourism, the cruise ship industry, urban tourism and ecotourism. A wide range of case studies will include local as well as many international destinations.

GEOG 350. Metropolitan Los Angeles (3)

Prerequisite: A lower division course in geography. Geographical analysis of the Los Angeles urban area with emphasis on physical, economic, and cultural aspects of its development. (Available for General Education, Social Sciences)

GEOG 351. Urban Geography (3)

Prerequisites: A lower division course in the social sciences and completion of the lower division writing requirement. Geographical analysis of past and current patterns of world urbanization. Emphasis on city origins, growth, development, and current problems. (Available for General Education, Social Sciences)

GEOG 360/L. Introduction to Spatial Analysis and Lab (2/1)

Prerequisite: MATH 140. *Corequisite:* GEOG 360L. Application of probability theory, statistical procedures, and dimensional analysis to problems in economic and cultural geography, climatology, landforms, and related fields. Graphic representation. Two hours lecture; two hours lab.

GEOG 364/L. Geography of World Ecosystems (2/1)

Prerequisite: GEOG 101. *Corequisite:* GEOG 364L. Major vegetative formations of the world, their soil (edaphic) and atmospheric environments, and the role of human activity in modification, destruction, and replacement of vegetative structures and environments through purposeful and inadvertent activities. Examines local vegetative types on field trips. Two hours lecture; two hours field activity.

GEOG 365/L. Geomorphology and Lab (3/1)

Prerequisite: GEOG 101 or GEOL 101, and completion of the lower division writing requirement. *Corequisite:* GEOG 365L. Analytical and descriptive study of physical processes responsible for development and evolution of Earth's surface features. Aspects of local geomorphology will be observed on field trips. Three hours lecture; two hours field activity. (Available for General Education, Natural Sciences)

GEOG 366/L. Geography of Environmental Hazards/lab (3/1)

Observations, experiments, and demonstrations designed to familiarize students with the scientific investigation of environmental hazards. Three hours lecture, three hours lab. (Available for General Education, Natural Sciences)

Courses – Acceptable for Master's Degree

Note that 300-level courses in geography do not carry graduate credit for a master's in geography. Electives will normally be in geography at the 600-level. However, with departmental approval, certain 400-level courses in geography and related fields may be counted toward the Master's Degree.

GEOG 402/L. Physical Geography Techniques and Lab (1/2)

Prerequisite: GEOG 311, 364 or 365. *Corequisite:* 402L. Techniques course in geomorphology, climatology and biogeography includes the principles of field surveying and mapping, water sampling, stream velocity and sediment transport measurement, basic weather station instrumentation, programming and deployment, and sampling designs for vegetation and soil analysis. Course includes two off-campus field trips. One hour lecture, six hours lab/field.

GEOG 404A-Z. Field Studies in Geography (1-3)

Prerequisite: six units in Geography. Techniques of field observation, recordings and analysis through mapping and written reports. (A) Los Angeles, (B) Latin-America, (E) Environmental, (J) Cultural, (K) Tourism, (N) Resources, (T) Urban, (U) Physical, (V) Geomorphology, (W) Climate, (Z) Selected Topics. Field studies may be repeated for credit.

GEOG 406/L. Advanced Geographical Information Science and Lab (2/1)

Prerequisite: GEOG 306 or permission of instructor. *Corequisite:* GEOG 406L. Course will cover advanced topics in geographical information science. Students will investigate geographic data structures, database design, algorithms for spatial data analysis, and implementation and management issues associated with geographic information systems. Lab will demonstrate these issues through the use of ArcInfo software. Two hours lecture, two hours lab.

GEOG 407/L. Remote Sensing and Lab (2/1)

Prerequisite: GEOG 304/L. *Corequisite:* GEOG 407L. Problem oriented course emphasizing techniques and application on imagery recorded in non-visible segments of the electromagnetic spectrum. Includes infrared, near infrared and radar imagery from aircraft and satellite platforms. Two hours of lecture; three hours of lab.

GEOG 408A/L. Human/Cultural Applications in GIS and Lab (2/1)

Prerequisite: GEOG 406 or permission of instructor. Advanced applications of geographical information systems. Includes analysis of crime patterns, patterns of disease and health care delivery, population and housing characteristics, voting behavior and redistricting, market area analysis, utility management, transportation. Students taking 408A/L are also eligible to take GEOG 408B/L for credit. This course meets the GEOG 408 GIS certificate requirement. Two hour lecture, two hours lab.

GEOG 408B/L. Environmental/physical Applications in GIS and Lab (2/1)

Prerequisite: GEOG 406 or permission of instructor. Advanced applications of geographical information systems. Includes analysis of environmental hazards, animal and plant species distributions, distributions of archaeological sites, mineral exploration, forest inventory and management, navigation, hydrology, climatology, geomorphology. Project may result in the development of customized applications of software. Students taking 408B/L are also eligible to take GEOG 408A/L for credit. This course meets the GEOG 408 GIS certificate requirement. Two hour lecture, two hours lab.

GEOG 409/L. Computer Mapping and Lab (3/1)

Prerequisite: Upper Division standing. *Corequisite:* GEOG 409L. Design, use and preparation of graphs, diagrams and maps with computers. Three hours lecture; three hours lab.

GEOG 411. World Climate (3)

Prerequisite: GEOG 103 or 311. Comprehensive description and analysis of global world climate patterns, long-distance cause and effect relationships, and air-sea interaction.

GEOG 412. Boundary Layer Climatology (3)

Prerequisite: GEOG 311. Interrelations of weather and local topography and vegetation. Land-sea breezes, mountain-valley winds, natural and artificial windbreaks, sandstorms and dust storms, air pollution, local heat, moisture sources and sinks, frost prevention, forest fires. Field studies.

GEOG 413. Bioclimatology (3)

Prerequisite: GEOG 311. Description, measurement, and analysis of effects of climate on plants, animals, and humans.

GEOG 414. Hydroclimatology (3)

Prerequisite: GEOG 311. Details of the hydrologic cycle, emphasizing cloud physics, precipitation, evaporation, and runoff. Nature and causes of rainfall variability in time and space. Cloud seeding. Irrigation and water supply problems. Field studies.

GEOG 415. Air Pollution (3)

Prerequisite: GEOG 103 or 311. Role of meteorology in the transport and diffusion of air pollution; estimation of pollutant concentrations from continuous releases; familiarization with meteorological instrumentation and correct exposure; factors related to site selection, control programs, planning, and interpreting of surveys in relation to air pollution.

GEOG 416. Global Warming (3)

Prerequisite: GEOG 103 or 311. Analysis of Earth's changing climate throughout geologic time. Includes consideration of the mechanisms of climate change, techniques of climate reconstruction and analysis, and the chronology of climate change. Examines the issue of global warming, climate data, climate models and predictions. Considers the environmental impact of global warming.

GEOG 417. California for Educators (3)

Prerequisite: Available to members of Blended Single Subject Credential Program only. Examination of California, focusing on its political, social, and economic growth, its settlement, its population patterns, resource exploitation, and human-environment interaction. Spatial and temporal variation of these factors is emphasized. (Crosslisted with HIST 417)

GEOG 435. Historical Geography of Russia (3)

Prerequisite: Lower Division geography course or equivalent. Historical geography of Russia, emphasizing changing distributions of physical and cultural elements and evolution of the cultural landscape.

GEOG 444. Conservation (3)

Prerequisites: GEOG 101; completion of the lower division writing requirement. Lecture-discussion on the percepts, concepts, practices, and problems in the human utilization of resources. Regular written assignments are required.

GEOG 451. Advanced Urban Geography (3)

Prerequisite: GEOG 351; completion of the Upper Division writing requirement. Detailed analysis of theories and concepts of urban geography, including models of urban structure, central place theory, urban systems development, urban social geography, and government policy. Comparative analysis of North American, Latin American and European cities.

GEOG 452. Urban Land-Use Planning (3)

Prerequisites: Lower Division course in geography, political science, or sociology; completion of the lower division writing requirement. Principles and techniques of land-use planning in urban areas. Regular written assignments are required.

GEOG 453. Housing and Community Development (3)

Prerequisite: GEOG 351; completion of the Upper Division writing requirement. Detailed investigation of residential land use, neighborhood formation, and policy impacts. Case studies drawn from the local area are used to augment the course.

GEOG 459. Environmental Impact Studies (3)

Prerequisite: Lower Division geography course; Upper Division standing; completion of the lower division writing requirement. Geographic analysis of environmental control legislation affecting municipal, state, and federal planning; the application of geographic analysis to development of systems for evaluating planned land-use activities. Regular written assignments are required.

GEOG 460/L. Spatial Analysis and Comparison and Lab (2/1)

Prerequisite: GEOG 360 or equivalent. *Corequisite:* GEOG 460L. Statistical analysis of quantitative data by areas. Measurement of aggregation and concentration, description of a real distribution and gradients, significance of similarities and differences. Two hours lecture; two hours lab.

GEOG 462/L. Computer Applications in Geography and Lab (2/1)

Prerequisite: Upper Division standing. Nature of digital computers. Coding geographic data. Utilization of standardized computing routings, geographical data banks. Computer mapping. Computer programming. Two hours lecture; three hours lab.

GEOG 465/L. Fluvial Geomorphology and Lab (2/1)

Prerequisite: GEOG 365. *Corequisite:* GEOG 465L. Role of water in landform development: weathering, overland flow, open channel characteristics, drainage pattern evolution, and drainage basin characteristics. Two hours lecture; two hours field activity.

GEOG 466/L. Glacial and Periglacial Geomorphology and Lab (2/1)

Prerequisite: GEOG 365. *Corequisite:* GEOG 466L. Geographic aspects of landform development in cold climates: glacial processes, frost-activated processes, Pleistocene events and environments. Two hours lecture; two hours field activity.

GEOG 467/L. Arid Lands Geomorphology and Lab (2/1)

Prerequisite: GEOG 365. *Corequisite:* GEOG 467L. Landform development in deserts: origin of deserts, erosion and sedimentation in dry climates, morphology, aeolian processes. Two hours lecture; two hours field activity.

GEOG 468/L. Coastal Geomorphology and Lab (2/1)

Prerequisite: GEOG 365. *Corequisite:* GEOG 468L. Concepts and theories of beach and coastline development: near shore oceanographic processes, sea level fluctuations, coastal morphology, problems of classification. Two hours lecture; two hours field activity.

GEOG 482. Population Geography (3)

Prerequisite: Lower Division course in geography. Geographical analysis and study of the distribution, composition, migration, and growth of world population.

GEOG 486. Medical Geography (3)

Prerequisite: Lower Division course in geography; completion of the lower division writing requirement. Examination of the spatial distribution of human diseases at world, regional, national, and local scales. Special emphasis on understanding the physical and cultural factors associated with patterns of disease.

GEOG 487. Geography of Popular Culture (3)

Prerequisite: a course in human geography. Examines the patterns and processes of American popular culture. Topics include the geography of sports, music, television, movies and popular architecture.

GEOG 486SOC. Social Science Career Internship (3)

Prerequisites: Upper Division standing in a social or behavioral science major, appropriate methods course as specified by the department, and consent of instructor. Social and behavioral science principles will be applied to the work place. At least nine hours per week of supervised fieldwork is required. Students will complete learning contracts and submit written reports related to their internship. (See section on Academic Internship.) (Crosslisted with PAS, POLS, PSY, and SOC 486SOC)

GEOG 490. Senior Project (3)

Preparation of a research proposal and writing of a senior paper under close faculty supervision.

GEOG 494. Internship (3)

Prerequisite: GEOG major with senior standing. Upon prior approval of the Internship Coordinator, a student may earn 3 units of credit in the major for professional service as a geographer in a public agency or private organization. No more than 3 units may be applied to the major. Academic Internship course.

GEOG 496A-Z. Experimental Topics Courses in Geography (3)

Prerequisite: Appropriate Upper Division course in geography. Selected topics in Geography with course content to be determined. Topics may be repeated for credit.

GEOG 497A-F. Senior Seminar in Geography (3)

Prerequisite: Appropriate Upper Division course in geography. In a seminar setting, students are guided in reading, research, and writing on selected topics within one of the major subdisciplines of geography. Each seminar focuses on a particular subject within the designated subdiscipline. Subjects will vary and be determined each semester. Seminars in the same subdiscipline may be repeated for credit. A-Physical, B-Cultural, C-Economic, D-Urban, E-Regional, F-Techniques.

GEOG 498. Tutorial in Geography (1)

Prerequisite: Lower Division course in geography. Individual, supervised study in selected areas of the student's interests. A maximum of six units is permissible for credit in the major.

GEOG 499A-C. Independent Study (1-3)**Graduate**

Graduate courses in geography are reserved for students who have been admitted to the Geography graduate program under either classified or conditionally classified status, and are not appropriate for Postbaccalaureate Unclassified (PBU) students. Graduate students who have been admitted into formal Master's programs in other departments may enroll in geography graduate courses with the consent of the instructor.

All of the geography seminars numbered 605 through 695 focus on the advanced study of a specific topic or subfield determined by the instructor, and the specific content may vary with each offering. Each seminar will normally involve intensive reading and discussion of relevant literature and individual student preparation and presentation (oral and written) of a research paper. The general prerequisite for all of the seminars numbered 605 through 695 is classified status or consent of instructor.

GEOG 600. Geographic Thought, Analysis and Research (3)

Introductory seminar designed for first-year graduate students. Analysis of the trends in the theories, methods, and problems pertinent to contemporary geography, including a review of the skills required for geographical research, analysis, and writing.

GEOG 610A-G. Geomorphology (3)

A-Fluvial, B-Glacial and Periglacial, C-Arid Lands, D-Coastal, E-Special Topics in Geomorphology

GEOG 620A-G. Climatology (3)

A-Boundary Layer, B-Bioclimate, C-Hydroclimatology, D-Air Pollution, E-Paleoclimatology, F-Climatic Change, G-World Climate.

GEOG 630A-F. Environmental Studies (3)

A. Environmental Geography, B- Biogeography, C-Special Topics in Environmental Geography, D- Ecosystem Studies, E- Human Impact on the Environment and F-Natural Resources.

GEOG 640A-D. Economic Geography (3)

A-Special Topics in Economic Geography, B-Transportation, C-Industrial Location and D-Business Location Analysis.

GEOG 650A-D. Urban Geography (3)

A-Special Topics in Urban Geography, B-Housing and Community Development, C-Urban Social Geography and D-Metropolitan Los Angeles

GEOG 660A-D. Cultural Geography (3)

A-American Cultural Landscapes, B-Cultural Ecology, C-Special Topics in Cultural Geography and D-Social/Ethnic Studies.

GEOG 670A-G. Global Studies (3)

A-Population Geography, B-Medical Geography, C- Economic Development, D-Tourism, E-International Trade, F-Globalization, G-Political Geography.

GEOG 680A-N. Regional Geography (3)

A-California, B-United States, C-Canada, D-Mexico, E-Central America, F-South America, G-Europe, H-Southwest Asia, I-South Asia, J-Southeast Asia, K-East Asia, L-Eurasia, M-Africa, N-Oceania.

GEOG 690A-H. Geographic Information Science (3)

A-Special Topics in GIS, B-Spatial Statistics, C-Digital Cartography, D-Remote Sensing, E-Image Interpretation, F-Methods in GIS, G-Applications in GIS and H-Environmental Applications of GIS.

GEOG 695 A-C Methods of Geographical Analysis (3)

A-Quantitative Analysis, B-Methods in Geomorphology, C-Methods in Climatology.

GEOG 696. Directed Graduate Research (3)

To be taken near the end of the student's graduate program and prior to GEOG 698. Supervised research leading to the development of a thesis topic, preparation of a preliminary bibliography and a formal thesis proposal, and selection of a faculty thesis committee.

GEOG 697. Directed Comprehensive Studies (3)

Prerequisite: GEOG 696. Focused readings followed by Comprehensive exams under the direction of the student's committee. Only one enrollment permitted.

GEOG 698. Thesis (3)

Prerequisite: GEOG 696. Researching and writing the Master's thesis, under the supervision of the student's faculty thesis committee. Only one enrollment permitted.

GEOG 699A-C. Independent Study (1-3)

Prerequisite: Consent of instructor, graduate coordinator, and department chair. Maximum of 3 units may be applied to the student's program and only to the Elective requirement in the Option 1 program.