

**REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN GEOGRAPHY**  
**COLLEGE OF ATMOSPHERIC AND GEOGRAPHIC SCIENCES**  
 THE UNIVERSITY OF OKLAHOMA

For Students Entering the  
 Oklahoma State System  
 for Higher Education  
**Summer 2011 through  
 Spring 2012**

GENERAL REQUIREMENTS	
Total Credit Hours . . . . .	<b>126*</b>
Total Upper-Division Credit Hours . . . . .	<b>48</b>
<b>Minimum Retention/Graduation Grade Point Averages:</b>	
Minimum in OU Coursework . . . . .	<b>2.00</b>
Minimum in Major Coursework- Combined and OU . . . . .	<b>2.00</b>
Overall - Combined and OU . . . . .	<b>2.00</b>

**Geography**  
**B465**  
 Bachelor of Science  
 in Geography

OU encourages students to complete at least 32 hours of applicable coursework each year to have the opportunity to graduate in four years.				
Year	FIRST SEMESTER	Hours	SECOND SEMESTER	Hours
<b>FRESHMAN</b>	ENGL 1113, Principles of English Composition (Core I)	3	ENGL 1213, Principles of English Composition (Core I), or EXPO 1213, Expository Writing (Core I)	3
	MATH 1823, Calculus & Analytic Geometry I (Core I)	3		
	CHEM 1315, General Chemistry (Core II)	5		
	HIST 1483 or 1493, U.S. (Core IV)	3	MATH 2423, Calculus & Analytic Geometry II	3
	<sup>1</sup> Humanities Elective	3	CHEM 1415, General Chemistry	5
			<sup>1</sup> Natural Science Elective	4
	<b>TOTAL CREDIT HOURS</b>	<b>17</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>
<b>SOPHOMORE</b>	MATH 2433, Calculus & Analytic Geometry III	3	MATH 2443, Calculus & Analytic Geometry IV	3
	P SC 1113, American Federal Government (Core III)	3	PHYS 2524, General Physics for Engineering & Science Majors	4
	PHYS 2514, General Physics for Engineering & Science Majors	4	*C S 1313, Computer Programming	3
	<sup>1</sup> General Education Social Science (Core III)	3	<sup>1</sup> General Educ. Western Civilization & Culture Elective (Core IV)	3
	GEOG 1113, The Language of Maps, or GEOG 2453, Intro. to Computer Mapping and Analysis	3	<sup>3</sup> GEOG 3023, Principles of Physical Geography	3
	<sup>2</sup> Free Elective	1		
	<b>TOTAL CREDIT HOURS</b>	<b>17</b>	<b>TOTAL CREDIT HOURS</b>	<b>16</b>
<b>JUNIOR</b>	ENGL 3153, Technical Writing	3	<sup>4</sup> Science Elective: Geosciences Science Elective	3
	GEOG 3924, Analytic Methods in Geography	4	<sup>1</sup> General Education Understanding Artistic Forms (Core IV)	3
	<sup>1</sup> General Education Non-Western Culture (Core IV)	3	<sup>3</sup> GEOG 3243, Principles of Economic Geography	3
	<sup>4</sup> GEOG 3213, Principles of Human Geography	3	<sup>5</sup> GEOG Elective	3
	<sup>3</sup> GEOG Geographical Information Science Course	3	<sup>2</sup> Free Elective	3
	<b>TOTAL CREDIT HOURS</b>	<b>16</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>
<b>SENIOR</b>	<sup>4</sup> Science Elective	3	<sup>4</sup> Science Elective	3
	<sup>2</sup> Free Elective	3	<sup>2</sup> Free Elective	3
	<sup>2</sup> Free Elective	3	<sup>2</sup> Free Elective	3
	GEOG 4893, Research Methods & Professional Development	3	<sup>2</sup> Free Elective	3
	<sup>5</sup> GEOG Elective	3	GEOG 4953, Proseminar (Capstone)	3
	<b>TOTAL CREDIT HOURS</b>	<b>15</b>	<b>TOTAL CREDIT HOURS</b>	<b>15</b>

- = Students who have not completed two years of the same foreign language in high school are required to take two college courses in the same foreign language.
- <sup>1</sup> = To be chosen from the University-Wide General Education Approved Course List. Three hours of general education must be upper-division outside the major.
- <sup>2</sup> = Eighteen hours of faculty-adviser-approved Free Electives are required.
- <sup>3</sup> = One Geographical Information Science course (3 credit hours) chosen from 4133, 4353, or 4453 (or course approved by faculty adviser).
- <sup>4</sup> = A minimum of nine hours of faculty-adviser-approved courses in biologic science, chemistry, computer science, mathematics, physics, engineering, or geosciences science courses outside the major. Three hours must be a geosciences science course outside the major. Six hours must be upper-division.
- <sup>5</sup> = Six hours of faculty-adviser approved geography electives.
- \* = This course fulfills the Computer Literacy Requirement for graduation as required by the Oklahoma State Regents for Higher Education.

**NOTE:** No more than 52 hours of Geography coursework may be taken to fulfill the 126 minimum total credit hours required.

**Students must complete 48 hours of upper-division coursework for graduation.**

**University-Wide General Education Requirements (minimum 40 hours)**

Courses designated as Core I, II, III, IV, or Capstone are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. Courses graded S/U or P/NP will not apply.

<b>Core I</b>	<b>Symbolic and Oral Communication (9–19 hours, 3–5 courses)</b> • English Composition—6 hours, 2 courses • Mathematics—3 hours, 1 course • Foreign Language—0–10 hours, 2 courses in the same language, (can be met by successfully completing two years of the same foreign language in high school) • Other (courses such as communication, logic or public speaking)
<b>Core II</b>	<b>Natural Science (7 hours, 2 courses)</b> • Courses must be taken from different disciplines in the biological and/or physical sciences; one of which must include a laboratory.
<b>Core III</b>	<b>Social Science (6 hours, 2 courses)</b> • One course must be P SC 1113, "American Federal Government"
<b>Core IV</b>	<b>Humanities (12 hours, 4 courses)</b> • Understanding Artistic Forms—3 hours, 1 course • Western Civilization and Culture—6 hours, 2 courses, including HIST 1483 or HIST 1493 • Non-Western Cultures—3 hours, 1 course
<b>Senior Capstone Experience (3 hours, 1 course)</b>	

## COURSES IN GEOGRAPHY (GEOG)

**1113 The Language of Maps.** How to read, analyze and interpret graphic information symbolized on a wide variety of maps. Topics include: scale, location, distance and direction, navigation, interpreting human and physical landscapes, map propaganda, maps in the media and comparisons of maps in western and non-western societies. [I-O]

**1213 Economic Geography.** A survey of the contemporary global economy and of the analytical approaches developed by geographers studying it. Economic systems are examined at the household, urban, regional, national, and international levels. Special attention is given to changes in resource use, regional specialization, trade, industrial and retail location, and modernization. (F, Sp) [III-SS]

**2453 Introduction to Computer Mapping and Analysis.** An introductory survey of computer applications in mapping and map analysis. Designed to provide fundamental concepts and techniques necessary for visual presentation, analysis, and interpretation of geographic data using desktop mapping technologies. The course covers the nature of geographic data, desktop mapping, and map analysis. (F)

**2603 World Regional Geography.** A broad survey of the world's major culture regions emphasizing basic physical, cultural, economic, and political patterns, as well as the processes that have created those patterns. Emphasis on economic development, ethnic conflict, and environmental degradation, as well as on the changing role of the United States. (F, Sp, Su) [IV-WC]

**3003 Interpreting Planet Earth.** Prerequisite: junior standing or permission of instructor. This one-semester, dynamic course integrates human and physical geography. Understanding our planet, its people, issues and global activities will involve "hot topic" discussions, case studies, a team project, plus two outside class field-based activities. (Sp) [III-SS]

**3023 Principles of Physical Geography.** Prerequisite: Upper division standing or permission of instructor. Provides a foundation in physical geography. Students should gain a broad, comprehensive but focused viewpoint if lithospheric, biospheric and atmospheric processes as well as the interdependence among them. (Sp)

**3203 Globalization and the Environment.** Prerequisite: junior standing or permission of instructor. Explores the complex assemblage of economic, political, and cultural processes popularly known as "globalization" and examines their implications for resource use and the environment. A central objective is to facilitate critical thinking on global environmental issues and enable students to challenge the increasingly polarized rhetoric concerning economic growth and the environment. (Irreg.)

**3213 Principles of Human Geography.** Prerequisite: upper-division standing or permission of instructor. Introduction to the distribution of humans and their activities on the surface of the earth and the processes that generate these distributions. Special attention given to the influence of economy, culture, and politics in shaping the land and the spatial character and organization of human life. A key theme is the relationship of human diversity and places to the environment. (F)

**3243 Principles of Economic Geography.** Prerequisite: upper division standing or permission of instructor. An examination of the distribution of economic activities and the processes that generate them. Special attention is given to principles of economic location and their application to patterns of production, consumption, and exchange. Students will learn the theories and methods used by geographers in studying economic activities from the local to the global scale. (Sp)

**3253 Environmental Conservation.** Contemporary environmental issues and policies. Problems of population growth, food production, energy shortages, resource depletion and pollution impacts will be stressed. The social aspects of conservation management policies will be viewed at both global and national scales. (F) [III-SS]

**3513 Political Geography.** A survey, stressing current geopolitical conflicts. Special topics include the nation-state, territoriality, the legacies of colonialism, spheres of political influence, regional conflicts, political-geographical integration in such areas as Europe and the Pacific Rim, demographic and resource considerations in world politics, and emerging culturally based conflicts. (F, Sp) [IV-WC]

**3563 Geography of Natural Resources.** Definition and evaluation of mineral, agricultural, forest, and water resources, including their variation over time, between cultures, and as affected by technological innovation. Emphasis is placed on the distribution, technologies, institutions, and landscapes of natural resources in modern economies. (F, Sp)

**3613 Geography of Oklahoma.** A study of the physical regions, populations, distribution, economic development and recreational resources of Oklahoma. (Irreg.)

**†G3633 Historical Geography of the United States.** America's changing geography is considered under three headings: the Colonial Pattern, the Humid East, and the Dry West. Special attention is given to those human activities that have shaped successive cultural landscapes and to those patterns that persist to give present day regions their distinctive character. (F, Sp) [IV-WC]

**†G3924 Analytic Methods in Geography.** Prerequisite: Mathematics 0123 or satisfactory score on Math placement test. Introduces students to methods of organizing, classifying and describing geographic data, together with methods of interpreting spatial relationships and aerial associations. **Laboratory** (F)

**3933 Interpretation of Aerial Photographs.** Prerequisite: 1114 or permission. An introduction to the photographic inventory of physical and cultural land resources including current processes of change, and to the use of aerial photographs in evaluating present land use, potential alternatives, and associated risks. (Irreg.)

**4133 Fundamentals of Remote Sensing.** Prerequisite: junior standing or permission of instructor. An introduction to the theory and interpretation of remote sensing imagery, with emphasis on photographic, multi-spectral, thermal, and microwave remote sensing systems. Imagery from aircraft, satellite and low-altitude platforms will be used to illustrate geographic and environmental applications of remote sensing. Introduction to preprocessing (DIP). (F)

**G4203 Geomorphology.** Prerequisite: 1114, or comparable work in earth sciences, junior standing. Development and modification of land-surface form by atmospheric, fluvial, glacial, mass-wasting, volcanic and tectonic agents. Emphasis is placed on spatial aspects of the interactions at the interfaces of land, air and water. (Irreg.)

**4233 Digital Imaging Processing (Slashlisted with 5233).** Prerequisite: 4133/5133 or permission of instructor. Theory and techniques for computer processing (DIP) of digital earth resources satellite imagery and incorporation into geographic information systems. (Sp)

**4243 Geography of Asia.** Prerequisite: junior standing or permission of instructor. A survey of the Middle East and central, south, southeast and east Asia. The course includes overviews of the continent's physical, social, and economic characteristics, but it treats primarily of the evolution of Asia's contemporary cultural landscapes as an expression of Asian cultures. (Sp) [IV-NW]

**4253 Latin America Geography.** Prerequisite: junior standing or permission of instructor. An exploration of the ways in which natural, cultural, and historical processes have combined to shape a unique region of the world. Special emphasis will be placed on the legacies of colonialism, cultural landscapes, social movements, and environmental degradation and resource conservation. (Sp) [IV-WC]

**G4273 Regional Climatology.** Prerequisite: junior or senior standing; or permission of instructor. Investigates the nature of the Earth's climate and presents a synthesis of contemporary scientific ideas about atmospheric circulation. Topics include radiation, the hydrologic cycle, general circulation, local and regional climates, and global climate change. Specific attention is focused on the climatic water budget, its utility in evaluating local and regional climates, the emerging role of climate models, and issues in global climate change. (Irreg.) [II-NL]

**4283 Biogeography (Slashlisted with 5283).** Prerequisite: 1114 and junior standing. A survey of spatial patterns and processes in plant populations, plant communities, and vegetated landscapes. Emphasis is placed on the contemporary patterns of species and communities as determined by a combination of factors including physiography, climate, human influences, evolution, and dispersal. Field and laboratory techniques used in biogeographic research are also discussed. No student may earn credit for both 4283 and 5283. (Alt. Sp)

**4293 Hydrologic Science (Slashlisted with 5293).** Prerequisite: Math 1823 and either Physics 2414, 2514 or Chemistry 1315. Study of the processes which control the storage and movement of water at global, regional, and local scales. The emphasis is on the land portion of the hydrologic cycle, and includes the study of processes such as infiltration, soil water flow in the saturated and unsaturated zone, rainfall/runoff and evaporation. Lab sections include exercises on a computer in the field and in a soils lab. No student may earn credit for both 4293 and 5293. (Sp)

**4353 Introduction to Geospatial Information Technologies.** Prerequisite: junior standing or permission of instructor. Overview of theories, applications, and practices of modern geospatial information technologies, including global positioning systems (GPS), remote sensing (RS), and geographic information systems (GIS). Course includes lectures, discussions, interactive and hands-on computer exercises, field projects, and site visits to OU research centers, local governments, and private geospatial information technologies companies. (Su)

**4433 Cultural and Political Ecology.** Prerequisite: junior standing or permission of instructor. An introduction to the political, economic, and cultural factors that shape human-environmental relations among peasant and indigenous societies around the world. Special attention is placed on how people negotiate decisions about resource use within value and belief systems that vary in response to changing social and environmental contexts. (Sp) [III-SS]

**4443 Urban Ecology (Slashlisted with 5443).** Prerequisite: junior standing and permission of instructor. An interdisciplinary course that examines how cities acquire, utilize, and modify environmental inputs such as land, water, and energy, and in the process generate a complex set of waste streams and environmental impacts such as solid wastes, atmospheric emissions, and habitat modification. No student may earn credit for both 4443 and 5443. (Irreg.)

**4453 Geographic Information Systems (Slashlisted with 5453).** Prerequisite: junior standing or permission of instructor. An introduction to the nature and applications of geographic information systems (GIS) including the categories of geographic data, data input, data models, spatial analysis, output, and the uses of GIS in socio-economic and environmental studies. No student may receive credit for both 4453 and 5453. (F, Sp)

**4553 GIS Applications (Slashlisted with 5553).** Prerequisite: 4453. Emphasizes technical and application practices in geographic information systems (GIS). Through weekly exercises and two projects, students will gain experience with applications and utilities of Geographic Information Systems, and learn how to plan and implement a GIS project. No student may earn credit for both 4553 and 5553. **Laboratory** (Irreg.)

**4563 American Indian Geographies.** Prerequisite: upper-division standing. A survey of the geographical knowledge among Indians in North America. Historical and contemporary topics are covered in a cross-cultural perspective including land use, environmental perception, concepts of space and place, symbolic landscapes, sacred land, and the idea of resources. (Sp) [IV-NW]

**4893 Research Methods and Professional Development.** Prerequisite: GEOG 3213, GEOG 3023, GEOG 3243, and GEOG 3924 or concurrent enrollment. Research methods used in contemporary geography, use of these methods in designing research projects, and preparation for post-graduate employment and/or graduate education. Required prior to enrollment in Proseminar. Students complete proposals for research to be undertaken in the subsequent proseminar course. (F)

**4953 Proseminar in Geography.** Prerequisite: GEOG 1103, GEOG 1114, GEOG 1213, GEOG 3213, GEOG 3353, GEOG 3924, GEOG 4893 and an upper-division physical geography course; GEOG 3353 and GEOG 3924 may be taken concurrently with permission of instructor. History and character of the discipline of geography, with particular attention to changing themes, debates, and methods, the discipline's relations with its neighbors, and current trends in the discipline. (Sp) [V]

## COURSES IN MATHEMATICS (MATH)

**1823 Calculus and Analytic Geometry I.** Prerequisite: 1523 at OU, or satisfactory score on the placement test, or, for incoming freshmen direct from high school, satisfactory score on the ACT/SAT. Topics covered include equations of straight lines; conic sections; functions, limits and continuity; differentiation; maximum-minimum theory and curve sketching. A student may not receive credit for this course and 1743. (F, Sp, Su) [I-M]

**2423 Calculus and Analytic Geometry II.** Prerequisite: 1823. Integration and its applications; the calculus of transcendental functions; techniques of integration; and the introduction to differential equations. A student may not receive credit for this course and 2123. (F, Sp, Su) [I-M]

**2433 Calculus and Analytic Geometry III.** Prerequisite: 2423. Polar coordinates, parametric equations, sequences, infinite series, vector analysis. (F, Sp, Su)

**2443 Calculus and Analytic Geometry IV.** Prerequisite: 2433. Vector calculus; functions of several variables; partial derivatives; gradients, extreme values and differentials of multivariate functions; multiple integrals; line and surface integrals. (F, Sp, Su)

## COURSES IN PHYSICS (PHYS)

**2514 General Physics for Engineering and Science Majors.** Prerequisite: Mathematics 1823 or Mathematics 1914 with grade of C or better. Not open to students with credit in 1205. Vectors, kinematics and dynamics of particles, work and energy systems of particles, rotational kinematics and dynamics, oscillations, gravitation, fluid mechanics, waves. (F, Sp, Su) [II-NL]

**2524 General Physics for Engineering and Science Majors.** Prerequisite: 2514 and Mathematics 2423. Not open to students with credit in 1215. Temperature, heat, thermodynamics, electricity, magnetism, optics. (F, Sp, Su)