Fall 2020 Course Descriptions as of 04/05/2020 08:11 PM

Information in Browse Course Catalog is subject to change. Information is term specific. Please refer to the appropriate term when searching for course content. Key to Course Descriptions may be found at: **http://rcs.registrar.arizona.edu/course_descriptions_key**.

Geography & Development (GEOG)

GEOG 150B1: Your Place in the World: Geography and Global Issues (3 units)
Description: This course introduces students to fundamental issues and concepts pertinent to the study of individuals and societies. In focusing on models and explanations of how things are interrelated in earth space. Students are given a clearer understanding of the economic, social, and political systems with which individuals live and operate.
Grading basis: Regular Grades
Career: Undergraduate

Course Components:	Discussion	May Be Offered
	Lecture	Required

Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Enrollment not allowed if you have previously taken INDV 102 "Human Geography and Global Systems" (Topic 8).
General Education: INDV 102

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 150B2: Crime and the City (3 units)
Description: In this course you will examine crime and the city as mutually constitutive manifestations of identity and power. Throughout the semester we will focus on cultural criminological concepts and the making and marking of contemporary urban space. By looking at the locations and context in which community members and law enforcement interact, you will get a better understanding of the role space + place play in criminality and criminalization. This course will also provide you with a geographical lens through which to study contemporary and contentious social interactions as well as provide you with critical thinking skills, insight, and terminology needed to evaluate complex social phenomena concerning clashes over race, place, class, gender, and ultimately the right to the city.The texts for this course also provide contemporary and up close ethnographic views of neighborhoods where human agents struggle over identity and community. This course relies on perspectives from the fields of cultural geography and critical criminology in addition to critical studies of race and contemporary US urban society. Additional course concepts and topics include: cultural criminality, black and white spatial imaginaries, the under-policing/over-policing paradox, cities within the city, Chicano and Latino urbanism, gang injunctions and gentrification, transgression and contestation, community policing, civil gang injunctions, "all city" graffiti, broken windows theory, moral geographies, and the deeply superficial aspects of capital, style, and expression. You will emerge from this course better able to identify, discuss, and defend your own informed position on the nuances and realities of contemporary crime, criminality, and criminalization. You will also come away with a better understanding of the composition of the city, its historical development and ideological structures, as well as a critical perspective of the formation of transgressive subcultures and processes of community and neighborhood change. You will also develop the language needed to critically read, interpret and understand scholarly texts, as well as become up to date on contemporary debates and thinking about criminality and the policing of urban space. This is a course designed for students of all interests, perspectives, backgrounds, experiences, majors, training, and years of study. The only preparation you need for this class is a willingness to stay engaged.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 150C1: Environment and Society (3 units)
Description: This course introduces students to the study of relationships between people and the environment from a social science perspective, and provides a context for thinking about the social causes and consequences of environmental changes in different parts of the world. It focuses on how and why the human use of the environment has varied over time and space; analyzes different approaches to decision-making about environment issues and examines the relative roles of population growth, energy consumption, technology, culture and institutions in causing and resolving contemporary environmental problems around the world.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion — May Be Offered
Lecture — Required
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Enrollment not allowed if you have previously taken INDV 103 "Environment and Society" (Topic.16), GEOG 150S1, PTYS/ASTR 170S1.
General Education: INDV 103

GEOG 150S1: Evolution of a Sustainable World (3 units)
Description: This new hybrid course combines "Environment and Society" (GEOG 150C1) with "Evolution of a Habitable World" (PTYS/ASTR 170A1). We survey the natural sciences behind conditions that can support life on planets like Earth as well as the social science perspectives regarding how humans choose to interact with and influence the environment. This course also explores pathways to a sustainable future on Earth, including lessons for life and our possible relocation to other planets. Students can enroll through either PTYS/ASTR 170A1 (for Tier-1 NATS GenEd credit) or GEOG 150C1 (for Tier-1 INDV GenEd credit).
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture — Required
Co-convened with: PTYS 170S1
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Students who complete this course not eligible for GEOG150C1 nor PTYS/ASTR 170A1.
Field trip: None
Enrollment requirement: Must not have taken GEOG 150C1 or PTYS/ASTR 170A1.
Honors Course: Honors Contract
Honors Course: Honors Contract

GEOG 170A1: Earth's Environment: Introduction to Physical Geography (3 units)
Description: Introduction to fundamental laws of nature as expressed physical processes that govern the spatial distribution of Earth's land, sea, air, and biological environments. Focus on fluxes and feedbacks among these systems, and interactions with humans.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion — May Be Offered
Lecture — Required
Equivalent to: ABE 170A2, CHEE 170A1, ENVS 170A1, GC 170A1, MSE 170A2
Course typically offered:
Main Campus: Fall, Winter, Spring, Summer

Enrollment requirement: Enrollment barred if you've taken NATS101 "Earth Envr:Intr Phys Geo", "Intro to Environ Sci", "Intro to Global Change", "Sci, Tech & Environ", "Sustain Society", or 'Energy Sys & Sustainability" or ABE170A2, CHEE170A1, ENVS170A1, GC170A1, or MSE170A2.
General Education: NATS 101

GEOG 197F: Community and School Garden Workshop for High School Students (2 - 6 units)
Description: This course supports the participation of high school students in the UA Community School Garden Workshop course. The course is designed to train students to participate in the initiation, maintenance and enhancement of school gardens. Underlying this practical purpose is the goal of employing service learning as a way of promoting self-determination, collective well-being, and learning through community. The course revolves around consistent and engaged involvement with a Tucson school or community garden as well as its staff, students and/or community members. As a member of a school or community garden team, your tasks may cover the gamut from turning the compost pile to lesson plan development for teaching through the garden, to weeding, planting or organizing work crews. Importantly, as an intern at a community or school garden, learning and teaching will become almost inseparable.
Grading basis: Student Option ABCDE/PF
Career: Undergraduate
Course Components: Workshop — Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 199H: Honors Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course

GEOG 205: Places in the Media (3 units)
Description: This course is an introduction to media and geography. Students will develop critical frames for evaluating how places are represented in media such as television, film, music videos, blogs, and advertisements.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion May Be Offered
Lecture Required
Course typically offered:
Main Campus: Fall, Spring

General Education: Gen Ed Diversity Emphasis
General Education: Tier 2 Individuals & Societies

GEOG 210: The Political & Cultural Geography of Globalization (3 units)
Description: This course examines how systems of difference provide revealing analytical categories for understanding the political and cultural geography of globalization and develops critical thinking skills that can be used effectively beyond this course.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion May Be Offered
Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Two courses from Tier One, Individuals and Societies (Catalog numbers 150A, 150B, 150C).
General Education: Gen Ed Diversity Emphasis
General Education: Tier 2 Individuals & Societies

GEOG 220: Our Diverse Biosphere (3 units)
Description: The strategy is to immerse non-science majors in the biological aspects of Physical Geography and, through lively debate and discussion, maps and images, to enhance critical thinking skills students need to make decisions about the world around them.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Two courses from Tier One, Natural Sciences (Catalog numbers 170A, 170B, 170C).
General Education: Tier 2 Natural Sciences

GEOG 222: Working with Numeric, Spatial, and Visual Data: Fundamental Geographic Techniques (3 units)
Description: This class is designed to furnish students with a basic set of skills in recognizing, locating, processing and analyzing geographic data. These skills provide a foundation for upper-level classes in statistical methods, Geographic Information Systems, urban and regional development. These skills also provide a basic professional preparation for employment market requirements including defining research questions, selecting suitable geographic tools and methods to investigate, harvesting and analyzing data, and in presenting findings using computer mapping, spreadsheet, and charting software.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 230: Our Changing Climate (3 units)
Description: Where, when, and why is climate changing? We will answer these questions via computer visualization and hands-on exploration of satellite images, time-series, and other climate variability data at global, regional, and local scales, and from paleoclimate to modern instrumental record.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Laboratory May Be Offered
Lecture Required
Course typically offered:
Main Campus: Fall

Recommendations and additional information: Two courses from Tier One, Natural Sciences (Catalog numbers 170A, 170B, 170C).
General Education: Tier 2 Natural Sciences

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 240: Our Dynamic Landscape (3 units)
Description: Critical perspectives on complex environmental problems; issues include environmental hazards, renewable and nonrenewable resources; global, regional, and local patterns, and geographic scale are emphasized.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall

General Education: Tier 2 Natural Sciences

GEOG 250: Environment and Society in the Southwest Borderlands (3 units)
Description: A Tier Two, Individuals and Societies course¿explores the broader trends shaping the US Southwest and Borderlands, with particular emphasis on the region's human-environment tradition. It exposes students to a variety of methods for understanding how humans have organized in the Southwest to gain access to resources critical for their survival, both in the past and in the present context. Geog 250, likewise, focuses on the social, cultural, and political dimensions of human-environmental transformation.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion May Be Offered
Lecture Required
Course typically offered:
Main Campus: Fall, Spring

General Education: Tier 2 Individuals & Societies

GEOG 251: World Regions: Comparative and Global Perspectives (3 units)
Description: Survey and comparison of major world regions with a focus on how global processes, regional interconnections, and local geographic conditions create distinctive regions and landscapes.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion May Be Offered
Lecture Required
Equivalent to: LAS 251, NES 251
Also offered as: LAS 251, MENA 251
Course typically offered:
Main Campus: Fall, Spring

General Education: Gen Ed Diversity Emphasis
General Education: Tier 2 Individuals & Societies

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GEOG 252: Global Borders, Migration and Refugees (3 units)
Description: This course explores the broad trends shaping global migration, with particular emphasis on the political geographies of borders, population displacement and human rights, and comparative immigration and refugee experiences.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Recommendations and additional information: 2 courses from Tier One - Individuals/Societies.
General Education: Tier 2 Individuals & Societies

GEOG 256: Sustainable Cities and Societies (3 units)
Description: Urbanization and cities within the sustainability framework. Global urbanization, social justice, environmental equity, growth management, "the new urbanism." International cases. Web based projects.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: GEOG 256, PLG 256, PLN 256
Also offered as: PLG 256, RNR 256
Course typically offered:
Main Campus: Fall, Spring

Home department: Planning
General Education: Tier 2 Individuals & Societies

GEOG 270: Sports Geographies (3 units)
Description: Sports are a central part of landscapes and everyday lives around the world. They reflect and shape individual and national identities, historical and contemporary global political economies, and the places in which we live. This class explores these connections, places, and landscapes through the lenses of geography. Topics include the siting of stadiums and urban development; geographies of identity and nationalism; traditional/indigenous sports; transnational sports and migration; the political economy of megaevents such as the Olympics and World Cup; spaces of race/ethnicity and gender/sexuality; and the landscapes of outdoors sports.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Course cannot double count for the major and Tier Two.
General Education: Tier 2 Individuals & Societies

GEOG 301: Introduction to Regional Planning (3 units)
Description: Introduction to the principles and techniques used for planning in metropolitan and rural regions.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: PLG 301
Course typically offered:
Main Campus: Fall, Spring, Summer

Field trip: Field trip.
Home department: Planning

GEOG 302: Introduction to Sustainable Development (3 units)
Description: Introduction to Sustainable Development is a foundational course in understanding the policies and strategies that constitute "smart" regional development in US metropolitan areas.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 302
Course typically offered:
Main Campus: Fall, Spring

GEOG 303: Field Study in Environmental Geography (3 units)
Description: Methods used in environmental geography, including mapping techniques, use of global positioning systems, collection of various types of environmental data and basic data analysis methods.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $14
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring, Summer

Field trip: 2 - one day field trips
Student Engagement Activity: Discovery
Student Engagement Competency: Interdisciplinarity

GEOG 304: Water, Environment, and Society (3 units)
Description: The course explores human and natural systems and their dependence on freshwater at multiple scales. Topics of interest include global change, ecosystem services, groundwater, urbanization, land use, watershed and river basin management, stakeholder processes, and water policy.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 304
Course typically offered:
Main Campus: Fall, Spring

GEOG 305: Economic Geography (3 units)
Description: Analysis and modeling of the spatial structure of primary, secondary, and tertiary economic activities; location theory and regionalization in economic systems.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Global and Intercultural
Writing Emphasis: Writing Emphasis Course

GEOG 311A: Geography of Mexico (3 units)
Description: Provides an overview of the diverse regions, geographies and peoples of Mexico, with particular attention to contemporary processes shaping the socioeconomic, political, environmental and cultural landscape today.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: LAS 311A
Course typically offered:
Main Campus: Fall, Spring

GEOG 311B: Geography of Central America and the Caribbean (3 units)
Description: Land, people and politics in Central America and the Caribbean. Major themes include colonialism, race and national identity, development, revolution and counterrevolution, globalization and migration.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: LAS 311B
Course typically offered:
Main Campus: Fall, Spring

Writing Emphasis: Writing Emphasis Course

GEOG 311C: Geography of South America (3 units)
Description: Physical and cultural bases of South America's geographic patterns, with emphasis on human settlement and problems of resource development.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: LAS 311C
Course typically offered:
Main Campus: Fall, Spring

Writing Emphasis: Writing Emphasis Course

GEOG 311D: Geography of Africa (3 units)
Description: Physical and human bases of regional contrasts, with emphasis on tropical environmental systems and changing patterns of resource utilization and development.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: AFAS 311D
Course typically offered:
Main Campus: Fall, Spring

General Education: Gen Ed Diversity Emphasis
Writing Emphasis: Writing Emphasis Course

GEOG 311E: Geography of the Middle East (3 units)
Description: Physical environments and cultural areas of Southwest Asia, with emphasis on people-environment interrelationships, settlement systems, and impact of Islam.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: NES 311E
Also offered as: MENA 311E
Course typically offered:
Main Campus: Fall, Spring

General Education: Gen Ed Diversity Emphasis
Writing Emphasis: Writing Emphasis Course

GEOG 311F: The Political and Cultural Geography of East Asia (3 units)
Description: The course examines the contemporary history and development of the societies of East Asia- China, Korea, Japan and Mongolia-with a particular emphasis on the political, economic and cultural geography of the region. Rather than lumping the regional countries as a monolithic 'oriental' space, the course examines the complexities and peculiarities within this vast and fascinating region. Through surveying important themes including nationalism, political economy, human-environment relations, power, religion, identity, and gender, the course will provide in depth understandings of how geographies of identification and difference are constructed, contested, and renegotiated in these regional countries. Themes to explore in this course are: To what extent a rapidly rising China matter in the future global politics? Why should the global community be concerned with the contentious Korean peninsula? What are some implications of miraculous growth of Japan and its subsequent economic stagnation? Is formerly communist Mongolia's rapid development based on dramatic mining boom sustainable? Does it matter? What are some of the social peculiarities of the regional countries? What can we learn about the family and gender relations of these societies? What are some of the differences and similarities between within the regional countries? How can we understand and conceptualize the exchange, flow and consumption of popular cultural products within the regional countries?
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 312: Native American Geography (3 units)
Description: This course looks at environment and human relationships on the North American continent with an emphasis on Native nations and indigenous perspectives. Major topics include sacred spaces, colonialism, politics and law, race and power, cultural landscapes, governance and self-determination.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 315: GIST Programming I (3 units)
Description: This course is an introduction to the fundamentals of programming for Geographic Information Systems using Python. Students will be taught elements, methods and theories of scripting in Python including how to write and manipulate functions, loops, strings, lists, dictionaries, and classes with an emphasis on how to apply these tools to writing scripts in the ArcGIS environment. The only way to learn programming is by doing, and therefore this course is based on weekly coding assignments, supplemented by traditional readings and lecture materials that will build students' conceptual understanding of their burgeoning skills. Assessment will be based on weekly assignments, two midterm exams, and one in class presentation.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: GIST 315
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring

Recommendations and additional information: An introduction to GIScience as well as an introduction to ESRI's ArcGIS is needed to understand the principle concepts.
Home department: School of Geography and Development
Enrollment requirement: RNR 417

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 330: Introduction to Remote Sensing (3 units)
Description: Introduction to remote sensing principles, techniques, and applications, designed principally for those with no background in the field.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: GEN 330, GEOS 330, SW 330, SWES 330, WSM 330
Also offered as: ENVS 330, GEN 330, GEOS 330, GIST 330, WSM 330
Course typically offered:
Main Campus: Fall
Online Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery
Student Engagement Competency: Interdisciplinarity

GEOG 338: Biogeography (3 units)
Description: Biogeography is the study of the spatiotemporal distribution of living things. Biogeographers map and examine the distributions of organisms today and reconstruct those of the past. They also conduct research into how physical and biological factors and processes influence distributions of organisms and they study how geographic distributions affect the evolution and extinction of species.Earth is a dynamic, wondrous, and complex planet. The diversity we see in the living systems, i.e. the Earth's biosphere, is the result of many processes studied individually among many disciplines including hydrology, geology, ecology, and soil science. In this course, we will take a holistic and integrative look at the complex spatial variations in the elements of Earth's biosphere. This course is designed to explore how biogeographic processes influence the evolution of species, communities, and ecosystems and provides background and analytical techniques for studying the effects of global change on biota. This involves the study of the interplay between biota and environment through time and space.This course will combine evolutionary and ecological perspectives in the field of biogeography and show how Earth history, contemporary environments, and evolutionary and ecological processes have shaped species distributions and nearly all patterns of biodiversity. General patterns in space and time from a diversity of organisms across the Earth's aquatic and terrestrial ecosystems will be used to illustrate this broad field of biogeography.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture — Required
Course typically offered:
Main Campus: Fall

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 340: Cultural Geography (3 units)
Description: This course will approach the field of cultural geography examining theoretical foundations and practical applications. It will also focus on the interactive relationships between culture and places, spaces, regions, and landscapes.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 350: The Geography of Beer and Beverages (3 units)
Description: This course uses beer -- and other foods and beverages -- to examine fundamental geographical questions of change, globalization, and human-environment relations. Using a spatial perspective, we explore the history, economics, cultural, and environmental aspects of beer and brewing to better understand our world. We'll explore the links of beer to colonization, globalization, and commodification; migration and national identities; the impact of transportation and technologies on the spatial economies of beer; consolidation, neolocalism, and beer tourism; the impact of climate change and the physical geographies of key ingredients such as hops, barley, and water. Throughout the semester we'll use comparative perspectives provided by beverages such as cocoa, wine, coffee, whisk(e)y, and rum.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring, Summer

Recommendations and additional information: 2 courses from Tier One Individuals/Societies.
General Education: Tier 2 Individuals & Societies

GEOG 357: Geographical Research Methods (3 units)
Description: Formulation and solution of geographic problems; models, research design, and methods of gathering, analyzing, and portraying geographic data.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Student Engagement Activity: Discovery
Student Engagement Competency: Civic and Community
Writing Emphasis: Writing Emphasis Course

GEOG 362: Environment and Development (3 units)
Description: This course evaluates theories and practices aimed at addressing the complex relationship between economic development and environmental protection in both industrialized and developing world contexts
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 362
Course typically offered:
Main Campus: Spring

GEOG 363: Climate Change: Human Causes, Social Consequences and Sustainable Responses (3 units)
Description: Climate change has social causes and consequences, and the responses and solutions involve changes in human behavior, institutions, and technologies. This course analyses the social causes of climate change including the economic, political, social and cultural drivers of greenhouse gas emissions and land use, and the impacts of climate change on society such as vulnerability and impacts in sectors such as food, water, health, cities and sustainable development. It also discusses solutions and responses to climate change such as changing policies, behavior and attitudes, climate mitigation and adaptation, and the role of governments, cities, the private sector, social movements and individuals from the local to the global level.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 363
Course typically offered:
Main Campus: Fall, Spring

Field trip: none.

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 365: Human Rights, Immigration Enforcement and the US-Mexico Borderlands Today (3 units)
Description: The American immigration and border enforcement systems have undergone radical changes in the last several decades and have become flashpoints of controversy across the political spectrum. Using a human rights frame, this class will take a critical look at the development of these policies and the ways in which they have impacted immigrants and their families. Using the latest scholarship and recent in-depth journalism, we will explore the component policies of these complicated systems, their dramatic consequences for undocumented and documented people alike, and possible avenues for change within a human rights framework.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: LAS 365
Course typically offered:
Main Campus: Fall, Spring

Home department: Center for Latin-American Studies

GEOG 367: Population Geography (3 units)
Description: Fertility, mortality, and migration as agents of demographic change. Topics include fertility control and LDCs; working mothers and NDCs; aging societies; legal/illegal immigration in the U.S., population policies.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: SOC 367
Also offered as: SOC 367
Course typically offered:
Main Campus: Fall, Spring, Summer

Recommendations and additional information: Two courses from Tier One, Individuals and Societies (Catalog numbers 150A, 150B, 150C).
General Education: Tier 2 Individuals & Societies

GEOG 368: The Green Economy (3 units)
Description: The Green Economy. What is it and how does it function? What does it mean for our future? What are the implications for cities, community, and globalization? What kind of policies lay the foundation for green economic development, and what challenges and opportunities lie within? And what does 'green' mean anyway? This course is a challenging exploration into the day-to-day practices and policies of the green economy, particularly in the United States and the Southwest. The class will be devoted to understanding how the green economy functions and why, through readings, lectures, visiting speakers, and field studies.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 368
Course typically offered:
Main Campus: Fall

GEOG 370: Geography of International Development (3 units)
Description: Historical evolution of development theory and current debates in geography of international development. Planned micro to macro-level change over space and time examined related to employment, agriculture, food security, environment, migration and the household.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Honors Course: Honors Contract
Honors Course: Honors Contract

GEOG 371: Principles and Practices of Regional Development (3 units)
Description: Introduction to basic concepts, objectives, practices and techniques of regional and industrial development as a professional activity, with emphasis on development problems and solutions.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

Field trip: Field trip
Writing Emphasis: Writing Emphasis Course

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 372: Geography & Gender (3 units)
Description: This course is an introduction to gender and geography. Students will explore a cross-section of geographic research that provides a variety of perspectives on geography and women, gendered geographies, and feminist frameworks.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: GWS 372
Also offered as: GWS 372
Course typically offered:
Main Campus: Fall, Spring

GEOG 373: Political Geography (3 units)
Description: Explores links between global economic and political processes, national affairs and local politics. Designed to foster participation; assessment is via essays and assignments.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: POL 373
Also offered as: POL 373
Course typically offered:
Main Campus: Fall, Spring

Writing Emphasis: Writing Emphasis Course

GEOG 374: Geography, Social Justice and the Environment (3 units)
Description: Introduction to theories of social justice with application to social, cultural, and economic geography. What are the prevailing theories of social justice and how can we draw on them to assess movements and goals for social change? How do different geographical contexts inform our assessment of social justice concepts? Course will address theory, moral questions, and specific case studies equally.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: AICS 374
Also offered as: EVS 374
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Enrollment not allowed if you have previously taken ENVS 310.

GEOG 375: Metropolitan Tucson (3 units)
Description: Physical and cultural basis of Tucson's geographic patterns, with emphasis on the city's site, situation, settlement patterns and problems of growth and change.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall

Field trip: Field trip

GEOG 376: Community Organizations and Urban Development (3 units)
Description: This course will introduce students to influential urban developers, activist, and academics who have focused on urban growth, and examined the changing landscape of the city. We will look at some of the key roles that nonprofit organizations play in providing services, and a sense of community in an ever-growing city. Historically, community based nonprofit organizations have become an integral part of urban development as both community representations, but also in the increase in public-private partnerships. Some of the questions we will engage are how nonprofits and neighborhood-based initiatives are often better equipped to deal with, and advocate for the people in a certain area or neighborhood. We will also look at how these organization are influencing urban governance, often taking on the role where the welfare state is no longer available. The course consists of academic literature on the topic and key terms in urban geography as well as secondary literature that ties the academic literature to local issues. Throughout the semester, guest speakers and field trips will be used to tie the literature on nonprofits and urban development to the problems and growth that we are seeing in Tucson.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

Field trip: None.

GEOG 378: Global Human Rights (3 units)
Description: This course will explore the meanings of human rights in different historical contexts, as well as analyze ongoing contemporary conflicts over the universality of human rights. Our analytical lens will include political philosophers, nation-states and international organizations, but we will also pursue alternative visions and voices, exploring how human rights debates in the "West" were shaped by an uneasy tension with colonialism and slavery. The course explores the role of major governmental and non-governmental institutions in human rights activism, and analyzes emerging approaches to transnational geographies of justice. We will explore the ongoing contested boundaries of universal human rights protection, including gender and human rights; the collective rights of indigenous peoples; prisoners of war; and the rights of non-citizens within a global human rights regime still largely scripted by the dictates of national sovereignty.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: HIST 378
Course typically offered:
Main Campus: Spring

GEOG 379: Urban Growth and Development (3 units)
Description: Location patterns in urban areas and processes of growth; historical development of U.S. cities, rent theory, housing markets, commercial and industrial location, the role of transportation, urban finance, New Urbanist planning and sustainable development concepts.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: PLAN 379, PLG 379, PLN 379, PLNG 379
Also offered as: PLG 379
Course typically offered:
Main Campus: Fall, Spring

GEOG 380: Global Agricultural and International Relations (3 units)
Description: The importance of agriculture to the cultures, political structures, and economies of developing countries in Africa, Asia, South America, and Oceania.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: ANTH 380, GEOG 380
Also offered as: AGTM 380, ANTH 380
Recommendations and additional information: Introductory course in anthropology, sociology or economics. Two courses from Tier One, Individuals and Societies (Catalog numbers 150A, 150B, 150C).
Home department: Agricultural Education
General Education: Tier 2 Individuals & Societies
Writing Emphasis: Writing Emphasis Course

GEOG 391: Preceptorship (1 - 3 units)
Description: Specialized work on an individual basis, consisting of instruction and practice in actual service in a department, program, or discipline. Teaching formats may include seminars, in-depth studies, laboratory work and patient study.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 391H: Honors Preceptorship (1 - 3 units)
Description: Specialized work on an individual basis, consisting of instruction and practice in actual service in a department, program, or discipline. Teaching formats may include seminars, in-depth studies, laboratory work and patient study.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Honors Course: Honors Course
Honors Course: Honors Course

GEOG 392A: Directed Research in Geography and Regional Development (3 units)
Description: Course offers rotating topic explorations of themes in human geography, physical geography, human-environment geography, and regional development. Serves as an research-oriented introduction to the major themes resonating throughout contemporary geography.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated for a maximum of 12 units.
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 393: Internship (1 - 6 units)
Description: Specialized work on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Winter, Spring, Summer

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 395A: Current Topics in Geography (1 unit)
Description: Exchange of scholarly information and/or primary research through the Department's regularly scheduled Colloquium Series. Student responsibilities include critical reviews of presentations by local and visiting faculty. This course gives students a broad survey of the latest research within the subdisciplines in Geography.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Colloquium Required
Repeatable: Course can be repeated for a maximum of 6 units.
Course typically offered:
Main Campus: Fall, Spring

GEOG 396: Geography Proseminar (1 - 6 units)
Description: This proseminar invites students to develop and exchange scholarly information in a small group setting. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through conversation, discussion, reports, and/or papers. This proseminar will offer variable outcomes and topics based on the individuals' scope of interest and work with the supervising faculty member.
Grading basis: Student Option ABCDESP/PF
Career: Undergraduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 2 times.
Course typically offered:
Main Campus: Fall, Spring

Field trip: none

GEOG 396H: Geography Honors Special Topics Seminar (1 - 3 units)
Description: An Honors special topics seminar course for Honors Active Juniors and Seniors. Course includes small group discussion, research, and presentations on a variety of geography related special topics of interest. Current research, relevant issues, historical perspectives and guest speakers may be included. Honors sophomores may enroll with consent of the department.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 2 times.
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Honors active Junior or Senior status.
Honors Course: Honors Course
Honors Course: Honors Course

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 397A: Field Study in Geography Workshop (1 unit)
Description: A one credit hour field-based augmentation to a regular 3 credit hour non-field course offered in the school. Will involve travel to field sites and social and/or environmental data collection and analysis. Only to be used in conjunction with one of the school's regular courses.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $25
Course Components: Workshop Required
Repeatable: Course can be repeated for a maximum of 10 units.
Course typically offered:
Main Campus: Fall, Spring, Summer

Field trip: Field trips.
Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

GEOG 397B: Field Study in Geography Workshop (1 unit)
Description: A one credit hour field-based augmentation to a regular 3 credit hour non-field course offered in the school. Will involve travel to field sites and social and/or environmental data collection and analysis. Only to be used in conjunction with one of the school's regular courses.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Workshop Required
Repeatable: Course can be repeated for a maximum of 10 units.
Course typically offered:
Main Campus: Fall, Spring, Summer

Enrollment requirement: Concurrently enrolled in: GEOG 455.
Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

GEOG 397C: Field Study in Geography Workshop (1 unit)
Description: A one credit hour field-based augmentation to a regular 3 credit hour non-field course offered in the school. Will involve travel to field sites and social and/or environmental data collection and analysis. Only to be used in conjunction with one of the school¿s regular courses.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $75
Course Components: Workshop Required
Repeatable: Course can be repeated for a maximum of 10 units.
Course typically offered:
Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

GEOG 397D: Field Study in Geography Workshop (1 unit)
Description: A one credit hour field-based augmentation to a regular 3 credit hour non-field course offered in the school. Will involve travel to field sites and social and/or environmental data collection and analysis. Only to be used in conjunction with one of the school¿s regular courses.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $100
Course Components: Workshop Required
Repeatable: Course can be repeated for a maximum of 10 units.
Course typically offered:
Main Campus: Fall, Spring, Summer

Student Engagement Activity: Discovery
Student Engagement Competency: Innovation and Creativity

GEOG 399: Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 399H: Honors Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 401A: Planning Theory and Practice (3 units)
Description: This course is designed for advanced undergraduate students seeking careers in urban/regional planning, architecture, real estate development, and related fields. The primary objective of the course is to introduce students to the planning profession and the tracks of study within the University of Arizona's Planning Degree Program. Some of the topics covered during the semester include: the scope and objectives of urban planning; the evolution of the city and the profession of planning; ethics in planning; the place of planning within the government and the law; and selected topics of interest to planners.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: PLG 401A
Co-convened with:
Course typically offered:
Main Campus: Fall

Home department: Planning

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 401B: Introduction to Planning (3 units)
Description: The second of a two-course sequence, this course is designed for first year graduate students, although well suited for advanced undergraduate students who are seeking careers in urban/regional planning, architecture, landscape architecture, real estate development, and related fields. The primary objective of the course is to introduce students to the planning profession. Some of the topics covered include: history of planning, land use planning, growth management, and the ethics of planning.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: GEOG 401B, PLN 401B
Also offered as: PLG 401B
Co-convened with:
Course typically offered:
Main Campus: Spring

Home department: Planning

GEOG 403: Applications of Geographic Information Systems (3 units)
Description: General survey of principles of geographic information systems (GIS); applications of GIS to issues such as land assessment and evaluation of wildlife habitat; problem-solving with GIS.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory Required
Lecture Required
Equivalent to: GEOG 403
Also offered as: RNR 403
Co-convened with: GEOG 503
Course typically offered:
Main Campus: Fall, Spring, Summer

Recommendations and additional information: Basic computer application skills required.
Home department: Renewable Natural Resources

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 404: The Politics of Nature (3 units)
Description: Surveys political problems in environment/society relations by exploring the history of geographic theory surrounding environmental politics, surveying the local and global actors in conflicts, and addressing questions of biodiversity loss, forest conservation, and urban hazards.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 404
Course typically offered:
Main Campus: Spring

Recommendations and additional information: GEOG 210 or GEOG 251.

GEOG 407: The American Landscape (3 units)
Description: An in-depth exploration of how humans shape and are affected by a broad range of landscapes across the United States. Students will have the opportunity to learn about and apply a variety of methods for studying human-landscape interactions across a great diversity of contexts. These might include: city spaces, suburbs, seascapes, national parklands, agricultural lands, cold war landscapes, borderlands, and others.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: LAR 407
Co-convened with: GEOG 507
Course typically offered:
Main Campus: Spring

GEOG 408: Arizona and the Southwest (3 units)
Description: The changing character of the land and human occupancy of it, with emphasis on Arizona; historically and problem oriented.
Grading basis: Student Option ABCDE/PF
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: GEOG 508
Course typically offered:
Main Campus: Fall

Field trip: Field trip
Writing Emphasis: Writing Emphasis Course

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 410: Comparative Planning: Past, Present, and Future (3 units)
Description: Designed for planning students who expect to practice in a variety of national planning systems. The objective of this course is to provide a comparative survey of domestic planning systems in an international context. Additional topics covered include variations in the powers of local units of government and analysis of interjurisdictional competencies and conflicts.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: PLG 410
Co-convened with:
Course typically offered:
Main Campus: Fall

Home department: Planning

GEOG 414: Web Mobile GIST (3 units)
Description: GIST 414 Web and Mobile Design is a required skills course for the BSGIST major. GIST 414 introduces students to the expanding field of web and mobile-based mapping applications development. Students will apply skills gained in GIST I and Programming I and II to learn how to build interactive web and mobile apps that use geospatial data in an attractive format.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: GIST 414
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring

Home department: School of Geography and Development

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 415: GIST Programming II (3 units)
Description: This course builds upon the scriptwriting skills students learned in GIST 315. In this class, students will write scripts to automate workflows in ArcGIS and extend the tools already available in the ArcToolbox to achieve creative problem solving. Topics include using Python with Model Builder, preparing data as strings, lists, tuples, and dictionaries prior to use, using Python to run SQL queries, working with rasters in Python, automating mapping tasks, and developing custom scripting tools. In addition to weekly assignments and readings, assessment will be oriented around a single, student-directed project that will take the second half of the semester to complete. It will require students to write a simple script to accomplish a specified task in ArcGIS and present the results of their work to peers.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: GIST 415
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring

Recommendations and additional information: GIST 315.
Home department: School of Geography and Development

GEOG 416A: Computer Cartography (3 units)
Description: Introduces the principles of map design, production and analysis.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory Required
Lecture Required
Equivalent to: PLAN 481, RNR 416A
Also offered as: RNR 416A
Co-convened with: GEOG 516A
Course typically offered:
Main Campus: Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 416C: Urban Geographic Information Systems (3 units)
Description: Introduces concepts and application skills for use of geographic information systems to investigate a range of urban spatial issues and decision-making processes. Emphasis on complete process of GIS-based problem solving, including project planning, spatial data sources/acquisition, preparation/coding, analysis, representation, and communication.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — Required
Lecture — Required
Equivalent to: RNR 416C
Also offered as: RNR 416C
Co-convened with: GEOG 516C
Course typically offered:
Main Campus: Spring

Enrollment requirement: RNR/GEOG/SWES 417.

GEOG 416D: PPGIS: Participatory Approaches in Geographic Information Science (3 units)
Description: A project-based course focusing on applications and impacts of GIS and other spatial analysis technologies in grassroots community development, participatory decision making, and community-engaged social science. Class format includes discussion seminar, GIS workshop, collaboration, and out-of-classroom community involvement.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: RNR 416D
Also offered as: RNR 416D
Co-convened with: GEOG 516D
Enrollment requirement: RNR/GEOG/SWES 417.
Student Engagement Activity: Community Partnership
Student Engagement Competency: Innovation and Creativity

GEOG 416E: Geovisualization (GIS) (3 units)
Description: Introduces principles and practices of Geovisualization (Geoviz) and softwares (Community and ERDAS Image).
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50

Course Components:	Laboratory	May Be Offered
	Lecture	Required

Equivalent to: RNR 416E
Also offered as: GIST 416E, RNR 416E
Co-convened with: GEOG 516E
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: GEOG/RNR 416A or RNR/GEOG 417.
Student Engagement Activity: Creative Expression
Student Engagement Competency: Diversity and Identity

GEOG 416F: GIS for the Social Sciences (3 units)
Description: An advanced course for students who want to integrate social science data and geographic information science into their research or work life. The course is presented in a lecture/laboratory format. The lecture portion will deal with conceptual issues necessary for the integration of social science data and approaches within a GIS framework. The laboratory portion will provide practical experience with GIS software products used for the development and analysis of spatially-referenced social science data sets.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50

Course Components:	Laboratory	Required
	Lecture	Required

Also offered as: RNR 416F
Co-convened with: GEOG 516F
Course typically offered:
Main Campus: Fall

Enrollment requirement: RNR/GEOG/SWES 417.
Student Engagement Activity: Discovery
Student Engagement Competency: Professionalism

GEOG 417: Geographic Information Systems for Natural and Social Sciences (3 units)
Description: Introduction to the application of GIS and related technologies for both the natural and social sciences. Conceptual issues in GIS database design and development, analysis, and display.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory Required
Lecture Required
Equivalent to: GEOG 417, SW 417, SWES 417
Also offered as: GIST 417, RNR 417
Co-convened with: GEOG 517
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring, Summer

Recommendations and additional information: Basic knowledge of computer operations.
Home department: Renewable Natural Resources

GEOG 418: Analysis of Geospatial Data (3 units)
Description: Introduction to spatial analysis and modeling techniques. Students will learn how to use calculate spatial measurement, apply spatial statistical methods, create surfaces, and develop spatial modeling. Assignments will allow students to apply the methods to various real world problems.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: GIST 418, RNR 418
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: Renewable Natural Resources
Enrollment requirement: RNR/GEOG/GIST 417, and Statistics (MATH 163, or MATH 263, or SBS 200, or PSY 230, or equivalent).

GEOG 419: Cartographic Modeling for Natural Resources (3 units)
Description: Computer techniques for analyzing, modeling, and displaying geographic information. Development of spatially oriented problem design and the use of logic are applied to the use of GIS programs. Emphasis on applications in land resources management and planning.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50

Course Components:	Laboratory	May Be Offered
	Lecture	Required

Equivalent to: GEOG 419
Also offered as: RNR 419
Co-convened with: GEOG 519
Course typically offered:
Main Campus: Spring

Home department: Renewable Natural Resources

GEOG 420: Advanced Geographic Information Systems (3 units)
Description: Examines various areas of advanced GIS applications such as dynamic segmentation, surface modeling, spatial statistics, and network modeling. The use of high performance workstations will be emphasized.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50

Course Components:	Laboratory	Required
	Lecture	Required

Also offered as: GIST 420, RNR 420
Co-convened with: GEOG 520
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Recommendations and additional information: RNR 417.
Home department: Renewable Natural Resources

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 422: Resource Mapping Using Unmanned Aircraft Systems (3 units)
Description: This course combines aspects of remote sensing, GIS, and biogeography in an interdisciplinary framework to elucidate how land use and land cover can be monitored using UAS. Links will be made with field and satellite-based monitoring techniques to cross-validate landscape maps. Students that take this course will develop a solid scientific and applied basis to address geospatial landscape monitoring questions. They will do this by safely flying a drone, acquiring data in the field and with the drone, processing GPS and multi-sensor data, analyzing these data and creating landscape maps and products.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: GEOG 422
Also offered as: RNR 422
Co-convened with: GEOG 522
Course typically offered:
Main Campus: Summer

Recommendations and additional information: RNR 417.
Home department: Renewable Natural Resources

GEOG 423: Latino Urbanization (3 units)
Description: This course will examine how urbanization transformed the lives of Latinas/os in the United States, and how their growing presence transformed communities, institutions, and national politics. Since World War II, the growth of U.S. urban areas directly corresponds with immigration trends. Globalization has intensified this dynamic as migrants moved northward from mostly rural areas in Mexico and Central America seeking jobs and to improve their quality of life. Aside from demographic growth and land-use issues, this course will highlight issues related to urbanization such as housing, political participation, education, health disparities and the formation of new identities and social movements. It will also consider multiethnic encounters and collaborations that often take place in urban life. Lectures will center on the historical, geographical and social changes that accompany urbanization. Interdisciplinary readings consisting of monographs, primary documents, oral testimonies and government documents will be assigned.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture — Required
Also offered as: MAS 423
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Junior or Senior status.
Home department: Mexican American Studies
Student Engagement Activity: Discovery
Student Engagement Competency: Sustainability

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 424: Integrated Geographic Information Systems (3 units)
Description: Addresses the theoretical rationale, current knowledge and methods for achieving a common spatial basis between remote sensing (image) and GIS (non-image) data.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Co-convened with: GEOG 524
Course typically offered:
Main Campus: Spring

Recommendations and additional information: GEOG 483, RNR 417, equivalent coursework or consent of instructor.
Honors Course: Honors Contract
Honors Course: Honors Contract

GEOG 430: The Climate System (3 units)
Description: Systematic examination of processes and circulations comprising Earth's climate. Emphasis on circulations influencing geographic processes using examples of atmospheric environmental issues.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Lecture — Required
Equivalent to: ARL 430
Co-convened with: GEOG 530
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Pre-requisites are GEOG 230 OR ATMO 336. Must not have taken ATMO 421.

GEOG 431A: Traditional Ecological Knowledge (3 units)
Description: An introduction to the growing literature on traditional ecological knowledge and its relationships to the ecological and social sciences.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture — Required
Also offered as: AIS 431A, ANTH 431A, ENVS 431A, RAM 431A, RNR 431A, WFSC 431A, WSM 431A
Co-convened with: GEOG 531A
Course typically offered:
Main Campus: Fall

Home department: American Indian Studies Committee

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 435: Plants under Stress: Plant-Environment Interactions in a Changing World (3 units)
Description: Plant ecophysiology is the study of a plant's physiological response to its environment. These responses within vegetation serve to determine patterns in biogeography and community, landscape, and ecosystem ecology. This 3-hour course will (1) revisit the core principles and underlying assumptions that plant ecophysiology is based upon, (2) examine plant responses to a myriad of biotic and abiotic stresses, and (3) familiarize students with ecophysiological tools available to assess those plant responses. Upon completion of this course, students should be prepared to confidently outline and conduct ecophysiological experiments ~ including running, trouble-shooting, and maintaining commonly used equipment and interpreting measured response functions.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: GEOG 535
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Students will visit local research sites.

GEOG 439A: Introduction to Dendrochronology (4 units)
Description: Survey of dendrochronological theory and methods. Applications to archaeological, geological, and biological dating problems and paleoenvironmental reconstruction. Emphasis on dating methods, developing tree-ring chronologies, and evaluating tree-ring dates from various contexts.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $85
Course Components: Laboratory Required
Lecture Required
Equivalent to: ANTH 439A, GEOG 439A, WSM 439A
Also offered as: ANTH 439A, GEOS 439A, WSM 439A
Co-convened with: GEOG 539A
Field trip: Field trip.
Home department: Geosciences

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 444: Entrepreneurial Innovation for Sustainable International Development (3 units)
Description: This course examines development-driven social entrepreneurship strategies through which individuals and small groups can have an innovative, scalable impact on sustainable development in the impoverished world (e.g., Sub-Sahara Africa). Students will address two non-traditional development questions: what is the impact of innovative, development-driven entrepreneurship and how can I collaborate with my peers in the developing world to utilize technology and markets for the betterment of impoverished societies?
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: GEOG 544
Course typically offered:
Main Campus: Fall, Spring

GEOG 445: Geographies of International Environmental Governance (3 units)
Description: Why is it so difficult to solve international environmental problems? What works and doesn¿t work in international environmental policy and governance? What improvements can be made and how can we take positive steps forward? This course seeks to address these very questions from a geographical and social science perspective. We will explore the nature and causes of many high-profile international environmental problems and the solutions developed to address these challenges. We will begin by identifying some key concepts in global environmental politics such as the global commons, sovereignty, and sustainability. Next, we will explore the geographical origins and consequences of international environmental issues - which countries and groups are most responsible, how the issue relates to the earth's physical and human geography, and who will be most affected. We will explore the processes of environmental policy development from the identification of problems to the negotiation of solutions, and the implementation of international treaties and agreements. We will look at a variety of cases including water, whaling and marine conservation, fisheries, ozone depletion, toxic waste, transfrontier pollution, deforestation, biodiversity, and climate change, and how these relate to development goals. Finally, students will debate key policy questions in global environmental politics and analyze approaches to development, security, equity, and justice. The focus will be at the global level but we will also examine the interaction between processes in sub-national, national and international arenas and the role of government, business, nongovernmental and international organizations.
Grading basis: Student Option ABCDE/PF
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 445
Course typically offered:
Main Campus: Fall, Spring

GEOG 446: Health and the Global Economy (3 units)
Description: This course deals with the interconnection of the global economy, local social structures, and health, as well as examining disease and spatial aspects of health care, including access to care.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: GWS 446
Also offered as: GWS 446
Co-convened with: GEOG 546
Course typically offered:
Main Campus: Summer

GEOG 447: Global and Regional Climatology (3 units)
Description: Description and analysis of the atmospheric circulation process that produces differences in climates throughout the world. Emphasis on the earth's problem climates and climatically sensitive zones most susceptible to floods, droughts, and other environmental stresses due to global change.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: GEOS 447
Co-convened with: GEOG 531
Recommendations and additional information: ATMO 171 or GEOG 171.

GEOG 453: Locational Analysis (3 units)
Description: Industrial location theory and location factors, consumer travel behavior and market areas, geography of economic impacts, location of public facilities.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: PLAN 453, PLG 453, PLN 453, PLNG 453
Also offered as: PLG 453
Course typically offered:
Main Campus: Fall

Writing Emphasis: Writing Emphasis Course

GEOG 454: Regional Analysis (3 units)
Description: Regionalization and geographic scale; spatial variation and well-being and development; multiplier analysis; demographic-economic models; theories of regional growth; regional policy.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Lecture Required
Co-convened with: GEOG 554
Course typically offered:
Main Campus: Spring

GEOG 455: Regional Geographies (1 - 9 units)
Description: Course provides focused training dedicated to a single region and can include fieldwork, lectures, and/or original research. Course may include 1 or more field trips.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Repeatable: Course can be repeated a maximum of 4 times.
Co-convened with: GEOG 555
Course typically offered:
Main Campus: Spring, Summer

Field trip: May include 1 or more field trips.

GEOG 456: The American City (3 units)
Description: An integrated approach to the built environment with special emphasis on the historical, social, and political aspects of American urban development.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: PLAN 456, PLG 456, PLN 456, PLNG 456
Also offered as: PLG 456
Course typically offered:
Main Campus: Fall

Student Engagement Activity: Discovery
Student Engagement Competency: Civic and Community
Writing Emphasis: Writing Emphasis Course

GEOG 457: Statistical Techniques in Geography, Regional Development and Planning (3 units)
Description: Methods of gathering and analyzing data for the solution of geographical, urban, and regional planning problems, with emphasis on quantitative and statistical techniques used in spatial analysis and cartography, on the one hand, and program planning, on the other.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: PLAN 457, PLG 457, PLN 457, PLNG 457
Also offered as: GIST 457, PLG 457
Co-convened with: GEOG 557
Course typically offered:
Main Campus: Fall

GEOG 458: Geography of Transportation (3 units)
Description: The course presents an overview of the geography of transportation and the relation between transportation and spatial organization. Approaches of description and normative analysis are integrated for understanding the geography of transport.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture — Required
Co-convened with: GEOG 558
Course typically offered:
Main Campus: Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Sustainability

GEOG 459: Land Use and Growth Controls (3 units)
Description: Lecture/seminar class designed for graduate planning students. Looks at basic and advanced land use, the tools utilized for land use planning, and the methodology of land use planning. Current planning and legal issues dealing with regulation of growth, the sequence of growth, and the limiting of growth are analyzed. Issues of equity in controlling land use are also explored.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: GEOG 459, PLAN 459, PLN 459, PLNG 459
Also offered as: PLG 459
Co-convened with:
Course typically offered:
Main Campus: Spring

Home department: Planning

GEOG 460: The Environmental History of East Asia (3 units)
Description: This course explores the mutual impact of culture and nature - how the natural environment has shaped culture, and how humans have impacted the natural environment (and to take this full circle, how human-induced changes in the natural environment subsequently impact societies). The relatively rapid and thoroughgoing transformations in East Asia over the past century allow us an ideal setting to explore the interaction between culture and nature. Focusing largely on China, Japan, Korea, and Vietnam, this course explores how the relatively new field of environmental history opens new dimensions of historical inquiry.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EAS 460, HIST 460
Co-convened with: GEOG 560
Course typically offered:
Main Campus: Fall, Spring

Home department: History
Writing Emphasis: Writing Emphasis Course

GEOG 461: Environmental and Resource Geography (3 units)
Description: Examines physical resources (e.g. distribution, quantities, and availability) and the human factors which may contribute to their completion and deterioration as well as protection and maintenance.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: HWRS 461, LAS 461, PLAN 461, PLG 461, PLN 461, PLNG 461, WRA 461
Also offered as: EVS 461, HWRS 461, LAS 461, PLG 461
Course typically offered:
Main Campus: Spring

Writing Emphasis: Writing Emphasis Course

GEOG 462: Environmental Law, Geography and Society (3 units)
Description: This course offers an overview of U.S. environmental law and policy in historical and geographic context. How has U.S. society used laws to solve environmental problems? We introduce the fundamental elements of the U.S. legal system and the public policy process, as they affect the natural environment and resources. We study key environmental laws, such as the National Environmental Policy Act and the Clean Air Act, and the political geography, court decisions, and policy issues that have shaped their implementation in practice. In addition to environmental law, we discuss different approaches to environmental economics, political economy, and human-environment relations in order to better understand the wider social and geographic context of environmental regulation. In the last part of the course we study the evolution of electricity law in relation to changing social and environmental priorities, and these cross-cutting themes lead us to look at international environmental problems of global warming and climate change.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 462
Course typically offered:
Main Campus: Fall

Writing Emphasis: Writing Emphasis Course

GEOG 463: Economic and Environmental Input-Output Analysis (3 units)
Description: This course provides the theory, techniques and hands-on experience necessary to understand input-output and its applications to a set of economic and environmental issues. Input-output has the capacity to measure linkages and the propagation of an economic or environmental shock across sectors and regions of an economy. It is commonly used for transportation planning, disaster relief, energy forecasting, environmental analysis (pollution attribution), social accounting models, and quantifying the impact of a terrorist attack. An important aspect of the course is to gain hands-on experience by applying the appropriate techniques and perform impact analysis with Microsoft Excel and PyIO (Python Input-Output).
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: GEOG 563
Course typically offered:
Main Campus: Fall

Recommendations and additional information: MATH 254, or its equivalent, or consent of the instructor.

GEOG 465: Global Cities: Urbanization, Globalization, and Citizenship (3 units)
Description: This course explores contemporary urban processes in transnational and cross-cultural perspective. Drawing on theories and histories of globalization, development, modernity and migration, we will consider how the global context shapes debates about cities and social life. How have contemporary urban places developed and what problems and solutions are articulated around these sites?
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 466: The Middle Eastern City and Islamic Urbanism (3 units)
Description: Examines the physical and socioeconomic characteristics of the city in the Middle East and North Africa; the Islamic city model, the traditional and contemporary bazaar and medina, urban evolution and transformation.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: GEOG 466
Also offered as: MENA 466
Co-convened with: GEOG 566
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: NES/MENA 277A and NES/MENA 277B or consent of instructor.
Home department: School of Middle Eastern and North African Studies

GEOG 468: Water and Sustainability (3 units)
Description: Social and environmental conflicts over water are intensifying in much of the world. This course studies the physical basis, history, and political economy of water development and water policy in the U.S. and internationally.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: EVS 468
Co-convened with: GEOG 568
Course typically offered:
Main Campus: Spring

Honors Course: Honors Contract
Honors Course: Honors Contract

GEOG 469: Water Resource Assessment (3 units)
Description: Focuses on watersheds, aquifers, and river basins as sources of water to meet human and environmental demands. Methods include watershed delineation, water budget and safe yield calculation, and water quality assessment. Models and decision support systems are reviewed.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: GEOG 569
Course typically offered:
Main Campus: Spring

Recommendations and additional information: GEOG 220 or GEOG 230 or GEOG 240 or GEOG 170A1.
Field trip: 1 day trip to Santa Cruz/Rillito/Sabino Canyon/or San Pedro Rivers. Grads will have 1-day trip to synthesize understanding in a comp assessment of water resources w/ emphasis on water pol. linked to critical soc & envrmnt¿l processes across many scales.

GEOG 471: Problems in Regional Development (3 units)
Description: Topical issues in regional development, with emphasis on policy in diverse contexts and case study analysis.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: AEC 471, AISD 471, AREC 471, PLAN 471, PLG 471, PLN 471, PLNG 471
Also offered as: AREC 471, PLG 471
Co-convened with: GEOG 571
Course typically offered:
Main Campus: Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism
Writing Emphasis: Writing Emphasis Course

GEOG 472: Exploring Radical Geography (3 units)
Description: Introduction to origins and continuing development of radical geography and its concerns with capitalism, nature, culture, class, gender, race, and ethnicity.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Co-convened with: GEOG 572
Course typically offered:
Main Campus: Fall

GEOG 473: Spatial Analysis and Modeling (3 units)
Description: Explores the use of geographic information systems (GIS) as a tool for natural resource and environmental managers. Topics include spatial autocorrelation, interpolation techniques, and model integration. Examines sources of error and possible ramifications.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: GEOG 473, HWRS 473, WSM 473
Also offered as: RNR 473
Co-convened with: GEOG 573
Course typically offered:
Main Campus: Fall

Recommendations and additional information: RNR 417; a statistics course.
Home department: Renewable Natural Resources

GEOG 476: The Land Development Process (3 units)
Description: A case-oriented approach to site selection, rezoning, financing, architectural design, economic feasibility, and other facets of the land development process.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture — Required
Repeatable: Course can be repeated a maximum of 2 times.
Equivalent to: GEOG 476, PLAN 476, PLN 476, PLNG 476
Also offered as: PLG 476
Co-convened with: GEOG 576
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Consult department before repeating this course.
Field trip: Field trip
Home department: Planning

GEOG 476U: The Chinese City: Comparative Perspectives (3 units)
Description: This course asks how the city was understood and urban space was experienced in China from the late imperial period to the twentieth century, from the walled cities of Ming and Qing to the neoliberal remaking of Beijing and Shanghai, passing through the modernist experiments of the Communist and Republican periods. Examining some of the key social, cultural and political factors that shaped urban life, we will address such questions as: how did changes in media shape conceptions of urban space and one's place within it, what did the Chinese urban landscape look like, what were some of its key features, and how did political changes at the national level affect life and governance in the city? Our investigations will also lead us into the realm of cultural and intellectual history. We will look at how such notions as cosmopolitanism, nation-mindedness, and scientific rationality developed in and around the city. In more general term, we will use the case of China to investigate how a history of "modern urban life" and urban space can be written, and what its significance might be. This course maintains a focus on the distinctive character of various Chinese cities while attempting to elucidate deeper commonalities and similarities that shape urban experience in China and elsewhere. Comparisons with other national experiences as well as theoretical reflections on issues of urbanism and urban life will then be integral part of the course.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Discussion Required
Lecture Required
Also offered as: CHN 476U, HIST 476U
Co-convened with:
Course typically offered:
Main Campus: Fall, Spring

Home department: History

GEOG 480: Power, Politics and Deforestation in the Brazilian Amazon (3 units)
Description: This course examines the wide variety of causal explanations for deforestation in the Brazilian Amazon and the policy proposals offered by Latin American and North American political scientists, economists, historians, anthropologists, geographers, ecologists, journalists and environmental activists.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: LAS 480
Co-convened with: GEOG 580
Course typically offered:
Main Campus: Fall, Spring

Home department: Center for Latin-American Studies

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GEOG 482: Integrated Geospatial Technologies (3 units)
Description: The course will cover resource mapping concepts and technologies. Students are expected to have a background in GIS and remote sensing. Topics will include survey methods (e.g. GPS), Internet Mapping Technologies (e.g. Google Earth), remoting sensing technologies such as LiDAR and digital imagery, classification methods, and data integration. Students will be required to complete an independent mapping project.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Also offered as: GIST 482, RNR 482
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Home department: Renewable Natural Resources
Enrollment requirement: RNR 417, GEOG 330, and GEOG/GIST 315.

GEOG 483: Geographic Applications of Remote Sensing (3 units)
Description: Use of aircraft and satellite imagery for monitoring landforms, soils, vegetation and land use, with the focus on problems of land-use planning, resource management and related topics.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Lecture Required
Equivalent to: PLAN 483, PLN 483, PLNG 483, RNR 483, SWES 483
Also offered as: ENVS 483, GIST 483, PLG 483, RNR 483
Co-convened with: GEOG 583
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Enrollment requirement: GEOG/GEN/GEOS/ENVS/WSM/GIST 330.
Student Engagement Activity: Discovery
Student Engagement Competency: Interdisciplinarity

GEOG 488: Governing Science and Technology (3 units)
Description: Historical, cross-cultural, and geographical assessment of strategies societies have deployed to govern science and technology; effects of particular strategies in terms of impacts (both positive and negative) of science and technology on people, their lives, and the environment.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Lecture Required
Equivalent to: ANTH 488, POL 488
Also offered as: ANTH 488, POL 488
Course typically offered:
Main Campus: Spring

Writing Emphasis: Writing Emphasis Course

GEOG 490: Remote Sensing for the Study of Planet Earth (3 units)
Description: Remote Sensing for the Study of Planet Earth introduces basic and applied remote sensing science as a means to explore the diversity of our planetary environments (biosphere, atmosphere, lithosphere and hydrosphere) within the radiometric, spectral, spatial, angular and temporal domains of remote sensing systems. This survey course strikes a balance between theory, applications and hands-on labs and assignments. We explore how you can download, process, analyze and interpret multi-sensor data and integrate online remotely sensed data sources/products into your research of interest.
Grading basis: Regular Grades
Career: Undergraduate
Flat Fee: $50
Course Components: Lecture Required
Equivalent to: ARL 490, ATMO 490, GEN 490, GEOG 490, GEOS 490, HWRS 490, MNE 490, OPTI 490, RNR 490, SW 490, SWES 490
Also offered as: ATMO 490, ENVS 490, GEOS 490, HWRS 490, OPTI 490, REM 490, RNR 490
Co-convened with: GEOG 590
Course typically offered:
Main Campus: Fall

Home department: Committee on Remote Sensing and Spatial Analysis
Enrollment requirement: GEOG/GEN/GEOS/ENVS/WSM/GIST 330.

GEOG 492A: Directed Research in Geography and Regional Development (3 units)
Description: Individual or small group research under the guidance of faculty. This course explores emerging new themes in geographic research. Small group or individual interactions provide the context for in-depth studies not feasible in a colloquium setting.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated for a maximum of 12 units.
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 493: Internship (1 - 6 units)
Description: Specialized work on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 496: Applied GIS (3 units)
Description: Applied GIST emphasizes applied problem solving approach within the context of a student-directed project. Specific GIS skills covered including project planning, spatial data sources and acquisition, data compilation, coding, analysis, representation, and presentation of results. The course can be repeated for credit, as each course will examine a different urban or environmental issue in the natural and social sciences using geographic information systems technology.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 2 times.
Also offered as: GIST 496
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring

Home department: School of Geography and Development
Enrollment requirement: RNR/GEOG/GIST 417.

GEOG 497F: Community and School Garden Workshop (2 - 6 units)
Description: This workshop-based course is designed to enable UA undergraduate and graduate students to work in Tucson-area schools and community sites helping stakeholders to plant, harvest and prepare foods from their garden as well as use the garden as a learning space. As a member of a school or community garden team, students are likely to cover a wide range of activities from maintaining a compost pile to administering lesson plans for teaching in the garden to weeding, planting, and organizing work crews. In addition to attending one 3-hour weekend workshop, students are required to attend weekly class meetings on the UA campus. Most of the course, however, revolves around independent and sustained involvement with a Tucson school or community garden. No teaching or gardening experience is required.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Workshop Required
Repeatable: Course can be repeated for a maximum of 9 units.
Also offered as: AIS 497F, ENVS 497F, HPS 497F, LAS 497F, NSC 497F, PLS 497F, STCH 497F, TLS 497F
Co-convened with: GEOG 597F
Course typically offered:
Main Campus: Fall, Spring

Student Engagement Activity: Community Partnership
Student Engagement Competency: Sustainability

GEOG 497S: Sustainable Urban Development and Design (3 units)
Description: Examines contemporary competition between environment, resources (water, energy), social equity, and economic viability in the community development and revitalization arena. Public policy, planning initiatives, design strategies and technical solutions that bridge the conflicting agendas are analyzed. Field investigation of contemporary cases. Appropriate for students specializing in planning, architecture and landscape architecture.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Workshop Required
Equivalent to: GEOG 497S, PLN 497S
Also offered as: PLG 497S
Co-convened with: GEOG 597S
Course typically offered:
Main Campus: Fall

Home department: Planning

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GEOG 498: Senior Capstone (1 - 3 units)
Description: A culminating experience for majors involving a substantive project that demonstrates a synthesis of learning accumulated in the major, including broadly comprehensive knowledge of the discipline and its methodologies. Senior standing required.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Course typically offered:
Main Campus: Fall, Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 498H: Honors Thesis (3 units)
Description: An honors thesis is required of all the students graduating with honors. Students ordinarily sign up for this course as a two-semester sequence. The first semester the student performs research under the supervision of a faculty member; the second semester the student writes an honors thesis.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 3 times.
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism
Writing Emphasis: Writing Emphasis Course

GEOG 499: Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 499H: Honors Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

Enrollment requirement: Student must be active in the Honors College.
Honors Course: Honors Course
Honors Course: Honors Course
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

GEOG 500: Research Design (3 units)
Description: Focus on conceptualizing research projects and on writing and presenting a research proposal.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Spring

GEOG 501A: Planning Theory and Practice (3 units)
Description: This course is designed for advanced undergraduate students seeking careers in urban/regional planning, architecture, real estate development, and related fields. The primary objective of the course is to introduce students to the planning profession and the tracks of study within the University of Arizona's Planning Degree Program. Some of the topics covered during the semester include: the scope and objectives of urban planning; the evolution of the city and the profession of planning; ethics in planning; the place of planning within the government and the law; and selected topics of interest to planners. Graduate-level requirements include one additional project and leading in-class exercises.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: PLG 501A
Co-convened with:
Course typically offered:
Main Campus: Fall

Home department: Planning

GEOG 501B: Introduction to Planning (3 units)
Description: The second of a two-course sequence, this course is designed for first year graduate students, although well suited for advanced undergraduate students who are seeking careers in urban/regional planning, architecture, landscape architecture, real estate development, and related fields. The primary objective of the course is to introduce students to the planning profession. Some of the topics covered include: history of planning, land use planning, growth management, and the ethics of planning. Graduate-level requirements include writing an additional paper.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: PLG 501B
Co-convened with:
Course typically offered:
Main Campus: Spring

Home department: Planning

GEOG 503: Applications of Geographic Information Systems (3 units)
Description: General survey of principles of geographic information systems (GIS); applications of GIS to issues such as land assessment and evaluation of wildlife habitat; problem-solving with GIS. Graduate-level requirements include completion of a project on the use of GIS in their discipline or an original GIS analysis (100 points) in coordination with the instructor.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory Required
Lecture Required
Also offered as: RNR 503
Co-convened with: GEOG 403
Course typically offered:
Main Campus: Fall, Spring, Summer

Recommendations and additional information: Basic computer application skills required.
Home department: Renewable Natural Resources

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 507: The American Landscape (3 units)
Description: An in-depth exploration of how humans shape and are affected by a broad range of landscapes across the United States. Students will have the opportunity to learn about and apply a variety of methods for studying human-landscape interactions across a great diversity of contexts. These might include: city spaces, suburbs, seascapes, national parklands, agricultural lands, cold war landscapes, borderlands, and others. Graduate-level requirements include the completion of an essay and annotated bibliography on the work of a specific scholar, place, or region.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: LAR 507
Co-convened with: GEOG 407
Course typically offered:
Main Campus: Spring

GEOG 510: Comparative Planning: Past, Present, and Future (3 units)
Description: Designed for planning students who expect to practice in a variety of national planning systems. The objective of this course is to provide a comparative survey of domestic planning systems in an international context. Additional topics covered include variations in the powers of local units of government and analysis of interjurisdictional competencies and conflicts. Graduate-level requirements include more required reading and are graded on analysis of readings in their logs.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: PLG 510
Co-convened with:
Course typically offered:
Main Campus: Fall

Home department: Planning

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 514: Methods in Urban Planning (4 units)
Description: This course explores the practical methods used in urban planning from policy analysis to survey development and administration to comprehensive plan making. While many of your initial classes discuss theory and purpose (the why) and others emphasize products and applications (the what), this class provides skill-building in the connecting those two things (the how). Students will be expected to read texts that describe the purpose of various planning analyses, examine the supporting data and research, and explore common approaches to achieving various goals. This class emphasizes the physical practice of finding/making data, doing analysis, and documenting for various public and semi-public audiences "limiting `lecture time" in lieu of practice and doing. As such, students will investigate a variety of urban planning problems and questions by completing tasks such as: analyzing and summarizing research and white-paper reports, searching for and acquiring data, analyzing and graphically displaying data, and documenting results in both inform and formal ways. A portion of this class emphasizes data, methods, and tools used specifically to support comprehensive plan making (e.g., population forecasting, demographic analysis, housing analysis, growth impact analysis, impact fee estimation).
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: EPID 514, PA 514, PLG 514
Course typically offered:
Main Campus: Spring

Home department: Planning

GEOG 515: Introduction to Water Resources Policy (3 units)
Description: Water resources policy including the identification of regional problems of water use, the elements of water planning, water rights, and a consideration of institutional structures and processes. Graduate-level requirements include an in-depth term paper.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 515
Also offered as: HWRS 515
Co-convened with:
Course typically offered:
Main Campus: Spring (odd years only)

Home department: Hydrology and Atmospheric Sciences

GEOG 516A: Computer Cartography (3 units)
Description: Introduces the principles of map design, production and analysis. Graduate-level requirements include an instructor approved 5-8 page paper on a related topic and analytical cartography demonstrating scholarly analysis in contemporary analytical cartography.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory, Lecture — May Be Offered, Required
Equivalent to: GEOG 581, PLNG 581, RNR 516A
Also offered as: RNR 516A
Co-convened with: GEOG 416A
Course typically offered:
Main Campus: Fall, Spring

GEOG 516C: Urban Geographic Information Systems (3 units)
Description: Introduces concepts and application skills for use of geographic information systems to investigate a range of urban spatial issues and decision-making processes. Emphasis on complete process of GIS-based problem solving, including project planning, spatial data sources/acquisition, preparation/coding, analysis, representation, and communication. Graduate-level requirements include writing an original research papers based on original data collected in the field.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory, Lecture — May Be Offered, Required
Equivalent to: PLG 516C, PLN 516C, RNR 516C
Also offered as: PLG 516C, RNR 516C
Co-convened with: GEOG 416C
Course typically offered:
Main Campus: Spring

Recommendations and additional information: GEOG 517 or RNR 517 or consent of instructor.

GEOG 516D: PPGIS: Participatory Approaches in Geographic Information Science (3 units)
Description: A project-based course focusing on applications and impacts of GIS and other spatial analysis technologies in grassroots community development, participatory decision making, and community-engaged social science. Class format includes discussion seminar, GIS workshop, collaboration, and out-of-classroom community involvement. Graduate-level requirements include writing an original research papers based on original data collected in the field.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory, Lecture — May Be Offered, Required
Equivalent to: PLG 516D, PLN 516D
Also offered as: PLG 516D, RNR 516D
Co-convened with: GEOG 416D
Recommendations and additional information: GEOG 517 or RNR 517 or consent of instructor.

GEOG 516E: Geovisualization (GIS) (3 units)
Description: Introduces principles and practices of Geovisualization (Geoviz) and softwares (Community and ERDAS Image). Graduate-level requirements include an instructor-approved, scholarly paper on a related topic in Geoviz. The paper will be 5-8 double-spaced, typewritten pages and provide a scholarly analysis and critique of a significant real-world Geoviz application.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory, Lecture — May Be Offered, Required
Also offered as: PLG 516E, RNR 516E
Co-convened with: GEOG 416E
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: GEOG 516A, GEOG/RNR 517 or consent of instructor.

GEOG 516F: GIS for the Social Sciences (3 units)
Description: An advanced course for students who want to integrate social science data and geographic information science into their research or work life. The course is presented in a lecture/laboratory format. The lecture portion will deal with conceptual issues necessary for the integration of social science data and approaches within a GIS framework. The laboratory portion will provide practical experience with GIS software products used for the development and analysis of spatially-referenced social science data sets. Graduate-level requirements include a 15 page term paper dealing with the integration of social science and GIS. Specific topics must be agreed upon in advance with the instructor. The paper will be completed in stages and due dates for selecting a topic, and for the completion of a précis, an outline and the paper will be posted on the course D2L site.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory Required
Lecture Required
Also offered as: RNR 516F
Co-convened with: GEOG 416F
Course typically offered:
Main Campus: Fall

Recommendations and additional information: RNR 417.

GEOG 517: Geographic Information Systems for Natural and Social Sciences (3 units)
Description: Introduction to the application of GIS and related technologies for both the natural and social sciences. Conceptual issues in GIS database design and development, analysis, and display. Graduate-level requirements include a thorough bibliographic review and a scholarly paper on a current application of geographic information systems in the student's major field.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory Required
Lecture Required
Equivalent to: GEOG 517, SW 517, SWES 517
Also offered as: RNR 517
Co-convened with: GEOG 417
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: Basic knowledge of computer operations.
Home department: Renewable Natural Resources

GEOG 519: Cartographic Modeling for Natural Resources (3 units)
Description: Computer techniques for analyzing, modeling, and displaying geographic information. Development of spatially oriented problem design and the use of logic are applied to the use of GIS programs. Emphasis on applications in land resources management and planning. Graduate-level requirements include a research paper.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50

Course Components:	Laboratory	May Be Offered
	Lecture	Required

Equivalent to: GEOG 519
Also offered as: RNR 519
Co-convened with: GEOG 419
Course typically offered:
Main Campus: Spring

Home department: Renewable Natural Resources

GEOG 520: Advanced Geographic Information Systems (3 units)
Description: Examines various areas of advanced GIS applications such as dynamic segmentation, surface modeling, spatial statistics, and network modeling. The use of high performance workstations will be emphasized. Graduate-level requirements include a more extensive project and report.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50

Course Components:	Laboratory	Required
	Lecture	Required

Equivalent to: GEOG 520, RNR 518
Also offered as: RNR 520
Co-convened with: GEOG 420
Course typically offered:
Main Campus: Spring

Recommendations and additional information: RNR 517.
Home department: Renewable Natural Resources

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 522: Resource Mapping Using Unmanned Aircraft Systems (3 units)
Description: This course combines aspects of remote sensing, GIS, and biogeography in an interdisciplinary framework to elucidate how land use and land cover can be monitored using UAS. Links will be made with field and satellite-based monitoring techniques to cross-validate landscape maps. Students that take this course will develop a solid scientific and applied basis to address geospatial landscape monitoring questions. They will do this by safely flying a drone, acquiring data in the field and with the drone, processing GPS and multi-sensor data, analyzing these data and creating landscape maps and products.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: GEOG 522
Also offered as: RNR 522
Co-convened with: GEOG 422
Course typically offered:
Main Campus: Summer

Home department: Renewable Natural Resources

GEOG 524: Integrated Geographic Information Systems (3 units)
Description: Addresses the theoretical rationale, current knowledge and methods for achieving a common spatial basis between remote sensing (image) and GIS (non-image) data. Graduate-level requirements include a scholarly semester project.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Co-convened with: GEOG 424
Course typically offered:
Main Campus: Spring

Recommendations and additional information: GEOG 583, RNR 517, equivalent coursework or consent of instructor.

GEOG 529: Objective Analysis in the Atmospheric and Related Sciences (3 units)
Description: This graduate course provides an overview of statistical methods used to interpret datasets in the atmospheric and related sciences. The objective is to provide a working knowledge of the statistical tools most commonly used. Topics include application of basic statistics (composite analysis; significance testing; curve fitting; regression analysis; correlation; and non-normal distributions), non-parametric statistical significance testing (e.g. Monte-Carlo methods and field significance), matrix methods (principal component analysis; SVD analysis; CCA), and time series analysis (harmonic analysis; power spectra; data filtering; cross-spectrum analysis; singular spectrum analysis; and wavelet analysis).
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 529, GEOS 529, HWRS 529
Also offered as: ATMO 529, GEOS 529, HWRS 529
Course typically offered:
Main Campus: Fall (odd years only)

Recommendations and additional information: Undergraduate level statistics course and linear algebra required. Computer programming skills (C, Fortran, Matlab) and knowledge of graphical display packages needed or consent of instructor.
Home department: Hydrology and Atmospheric Sciences

GEOG 530: The Climate System (3 units)
Description: Systematic examination of processes and circulations comprising Earth's climate. Emphasis on circulations influencing geographic processes using examples of atmospheric environmental issues. Graduate-level requirements include the completion of a term paper.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Lecture Required
Equivalent to: ARL 530, GC 530
Also offered as: ARL 530, GC 530
Co-convened with: GEOG 430
Course typically offered:
Main Campus: Fall, Spring

GEOG 531A: Traditional Ecological Knowledge (3 units)
Description: An introduction to the growing literature on traditional ecological knowledge and its relationships to the ecological and social sciences. Graduate-level requirements include preparing for and leading a class discussion on a specific topic.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: AIS 531A, ANTH 531A, ENVS 531A, RAM 531A, RNR 531A, WFSC 531A, WSM 531A
Co-convened with: GEOG 431A
Course typically offered:
Main Campus: Fall

Home department: American Indian Studies Committee

GEOG 532: Climate and Water (3 units)
Description: This course explores the connections between climate and water resources from the perspective of the past, the present, and the future to foster an appreciation of the finite nature of water in the western U.S. and other regions in the face of a changing climate.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Seminar May Be Offered

GEOG 535: Plants under Stress: Plant-Environment Interactions in a Changing World (3 units)
Description: Plant ecophysiology is the study of a plant's physiological response to its environment. These responses within vegetation serve to determine patterns in biogeography and community, landscape, and ecosystem ecology. This 3-hour course will (1) revisit the core principles and underlying assumptions that plant ecophysiology is based upon, (2) examine plant responses to a myriad of biotic and abiotic stresses, and (3) familiarize students with ecophysiological tools available to assess those plant responses. Upon completion of this course, students should be prepared to confidently outline and conduct ecophysiological experiments ~ including running, trouble-shooting, and maintaining commonly used equipment and interpreting measured response functions.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: ECOL 535
Co-convened with: GEOG 435
Course typically offered:
Main Campus: Spring

Field trip: Students will visit local research sites.

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 536A: Fundamentals of the Atmospheric Sciences (3 units)
Description: Broadly covers fundamental topics in the atmospheric sciences. Topics include composition of the atmosphere, atmospheric thermodynamics, atmospheric chemistry, cloud physics, radiative transfer, atmospheric dynamics, and climate. Graduate-level requirements include additional questions on homework and exams plus a term paper on a specialized research topic.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 536A, GEOS 536A, HWRS 536A, PHYS 536A, SWES 536A
Also offered as: ATMO 536A, ENVS 536A, HWRS 536A
Co-convened with:
Course typically offered:
Main Campus: Spring

Home department: Hydrology and Atmospheric Sciences
Interdisciplinary Interest Area: GEOS - Geosciences
Interdisciplinary Interest Area: PHYS - Physics

GEOG 538: Biogeography (3 units)
Description: The role of historical events and ecological processes in determining the past and present geographic distribution of plants and animals. Graduate-level requirements include a research paper.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ECOL 538, GEOS 538
Also offered as: ECOL 538, GEOS 538
Co-convened with: GEOG 438
Course typically offered:
Main Campus: Fall

GEOG 539A: Introduction to Dendrochronology (4 units)
Description: Survey of dendrochronological theory and methods. Applications to archaeological, geological, and biological dating problems and paleoenvironmental reconstruction. Emphasis on dating methods, developing tree-ring chronologies, and evaluating tree-ring dates from various contexts. Graduate-level requirements include a research paper reviewing critically some aspect of dendrochronology.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $85
Course Components: Laboratory Required
Lecture Required
Equivalent to: ANTH 539A, GEOG 539A, WSM 539A
Also offered as: ANTH 539A, GEOS 539A, WSM 539A
Co-convened with: GEOG 439A
Field trip: Field trip.
Home department: Geosciences

GEOG 543: Env. Hist. of Middle East (3 units)
Description: How have humans interacted with the varied environments of the Middle East: deserts, oceans, mountain slopes, river valleys, grasslands, farmlands, cities, ports? How can we study those interactions, with what sources and methods? How have they been affected by changes in climate or technology? What is the impact of the many conquests and colonialisms that have swept over the region up to the present day? How do Middle Easterners view their own environment, how do they understand nature? What are they doing now to preserve their environments from destruction?
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: HIST 543, MENA 543
Co-convened with: HIST 443
Course typically offered:
Main Campus: Spring

Home department: History

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 544: Entrepreneurial Innovation for Sustainable International Development (3 units)
Description: This course examines development-driven social entrepreneurship strategies through which individuals and small groups can have an innovative, scalable impact on sustainable development in the impoverished world (e.g., Sub-Sahara Africa). Students will address two non-traditional development questions: what is the impact of innovative, development-driven entrepreneurship and how can I collaborate with my peers in the developing world to utilize technology and markets for the betterment of impoverished societies? Graduate level requirements include a requirement to transfer the basics of their personal development project into a preliminary Logframe, the standard organizational template for development proposals. That task includes providing some assessment of costs, local needs and the sources of finance for your development entrepreneurship
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Co-convened with: GEOG 444
Course typically offered:
Main Campus: Fall, Spring

GEOG 546: Health and the Global Economy (3 units)
Description: This course deals with the interconnection of the global economy, local social structures, and health, as well as examining disease and spatial aspects of health care, including access to care. Graduate-level requirements include a more substantive research paper.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: GWS 546
Co-convened with: GEOG 446
Course typically offered:
Main Campus: Spring

GEOG 547: Global and Regional Climatology (3 units)
Description: Description and analysis of the atmospheric circulation process that produces differences in climates throughout the world. Emphasis on the earth's problem climates and climatically sensitive zones most susceptible to floods, droughts, and other environmental stresses due to global change. Graduate-level requirements include an additional term paper.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: GEOS 547
Co-convened with: GEOG 447
Course typically offered:
Main Campus: Spring

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 550: Geomorphology (4 units)
Description: Processes, form, and dynamics of the fluvial system from source to mouth. Introduction to aeolian, glacial, and planetary geomorphology. Graduate-level requirements include additional discussion section once a week.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $25
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: ARL 550, ARL 550
Also offered as: ARL 550, GEOS 550
Co-convened with:
Field trip: Field trip.
Home department: Geosciences

GEOG 553: Advanced Location Theory (3 units)
Description: Advanced location theory, including such topics as spatial variation in costs and demand; consumer travel behavior; spatial competition and strategic marketing; geography of economic impacts; and the location of public and private facilities. This is a GIS-intensive course.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture — Required
Equivalent to: PLAN 553, PLG 553, PLN 553, PLNG 553
Also offered as: PLG 553
Course typically offered:
Main Campus: Fall

Recommendations and additional information: RNR 517 or GEOG 517 or equivalent.

GEOG 555: Regional Geographies (1 - 9 units)
Description: Course provides focused training dedicated to a single region and can include fieldwork, lectures, and/or original research. Graduate-level requirements include writing original research papers based on original data collected in the field.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture — Required
Repeatable: Course can be repeated a maximum of 4 times.
Co-convened with: GEOG 455
Course typically offered:
Main Campus: Spring, Summer

Field trip: May include 1 or more field trips.

GEOG 557: Statistical Techniques in Geography, Regional Development and Planning (3 units)
Description: Methods of gathering and analyzing data for the solution of geographical, urban, and regional planning problems, with emphasis on quantitative and statistical techniques used in spatial analysis and cartography, on the one hand, and program planning, on the other. Graduate-level requirements include the completion of several data-intensive research projects.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Also offered as: PLG 557
Co-convened with: GEOG 457
Course typically offered:
Main Campus: Fall

GEOG 559: Land Use and Growth Controls (3 units)
Description: Lecture/seminar class designed for graduate planning students. Looks at basic and advanced land use, the tools utilized for land use planning, and the methodology of land use planning. Current planning and legal issues dealing with regulation of growth, the sequence of growth, and the limiting of growth are analyzed. Issues of equity in controlling land use are also explored. Graduate-level requirements include the completion of a series of research projects.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture — Required
Also offered as: PLG 559
Co-convened with:
Course typically offered:
Main Campus: Spring

Home department: Planning

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 560: The Environmental History of East Asia (3 units)
Description: This course explores the mutual impact of culture and nature - how the natural environment has shaped culture, and how humans have impacted the natural environment (and to take this full circle, how human-induced changes in the natural environment subsequently impact societies). The relatively rapid and thoroughgoing transformations in East Asia over the past century allow us an ideal setting to explore the interaction between culture and nature. Focusing largely on China, Japan, Korea, and Vietnam, this course explores how the relatively new field of environmental history opens new dimensions of historical inquiry. Graduate-level requirements include extra reading of additional translations of primary sources, extra discussion time with the instructor, a research-oriented paper, and a different grading scheme.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Also offered as: EAS 560, HIST 560
Co-convened with: GEOG 460
Course typically offered:
Main Campus: Fall, Spring

Home department: History
Writing Emphasis: Writing Emphasis Course

GEOG 563: Economic and Environmental Input-Output Analysis (3 units)
Description: This course provides the theory, techniques and hands-on experience necessary to understand input-output and its applications to a set of economic and environmental issues. Input-output has the capacity to measure linkages and the propagation of an economic or environmental shock across sectors and regions of an economy. It is commonly used for transportation planning, disaster relief, energy forecasting, environmental analysis (pollution attribution), social accounting models, and quantifying the impact of a terrorist attack. An important aspect of the course is to gain hands-on experience by applying the appropriate techniques and perform impact analysis with Microsoft Excel and PyIO (Python Input-Output).
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Co-convened with: GEOG 463
Course typically offered:
Main Campus: Fall

GEOG 564: The Arid and Semi-arid Lands (3 units)
Description: Past, present and future of settlement and resource utilization in the world's arid lands; spatial interrelationships of environmental, demographic, socioeconomic and political systems.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ARL 564, GEOG 564
Also offered as: ARL 564
Course typically offered:
Main Campus: Spring (odd years only)

Home department: Committee on Arid Lands Resource Sciences

GEOG 565: Physical Aspects of Arid Lands (3 units)
Description: The climate, landforms, hydrology, soils and vegetation of deserts, with special emphasis on processes and distribution at micro-to-macro scales.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ARL 565, GEOG 565
Also offered as: ARL 565
Course typically offered:
Main Campus: Spring (even years only)

Home department: Committee on Arid Lands Resource Sciences

GEOG 566: The Middle Eastern City and Islamic Urbanism (3 units)
Description: Examines the physical and socioeconomic characteristics of the city in the Middle East and North Africa; the Islamic city model, the traditional and contemporary bazaar and medina, urban evolution and transformation. Graduate-level requirements include additional readings and completion of an original research paper on an approved topic.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 566
Also offered as: MENA 566
Co-convened with: GEOG 466
Course typically offered:
Main Campus: Fall, Spring

Home department: School of Middle Eastern and North African Studies

GEOG 567: Geographical Analysis of Population (3 units)
Description: Population distribution and change; practical methods of demographic analysis, migration, business and planning applications.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: PLAN 567, PLN 567, PLNG 567
Also offered as: PLG 567

GEOG 568: Water and Sustainability (3 units)
Description: Social and environmental conflicts over water are intensifying in much of the world. This course studies the physical basis, history, and political economy of water development and water policy in the U.S. and internationally. Graduate-level requirements include additional reading every week and a term paper instead of the final exam.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Repeatable: Course can be repeated a maximum of 3 times.
Co-convened with: GEOG 468
Course typically offered:
Main Campus: Spring

GEOG 569: Water Resource Assessment (3 units)
Description: Focuses on watersheds, aquifers, and river basins as sources of water to meet human and environmental demands. Methods include watershed delineation, water budget and safe yield calculation, and water quality assessment. Models and decision support systems are reviewed.Graduate students taking the course will participate in a an all-day field trip and synthesize understanding in a comprehensive assessment of water resources with explicit emphasis on water policy linked to critical social and environmental processes across multiple scales.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Co-convened with: GEOG 469
Course typically offered:
Main Campus: Spring

Field trip: 1 day trip to Santa Cruz/Rillito/Sabino Canyon/or San Pedro Rivers. Grads will have 1-day trip to synthesize understanding in a comp assessment of water resources w/ emphasis on water pol. linked to critical soc & envrmnt¿l processes across many scales.

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 573: Spatial Analysis and Modeling (3 units)
Description: Explores the use of geographic information systems (GIS) as a tool for natural resource and environmental managers. Topics include spatial autocorrelation, interpolation techniques, and model integration. Examines sources of error and possible ramifications. Graduate-level requirements include the students to show additional, sophisticated proficiency with the material through the completion of a final course project, consisting of an additional analysis of data provided by the students (see syllabus for point breakdown).
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Laboratory — May Be Offered
Lecture — Required
Equivalent to: GEOG 573, HWRS 573, WSM 573
Also offered as: RNR 573
Co-convened with: GEOG 473
Course typically offered:
Main Campus: Fall

Recommendations and additional information: RNR 517; a statistics course.
Home department: Renewable Natural Resources

GEOG 574G: Introduction to Geostatistics (3 units)
Description: [Taught Spring semester in odd-numbered years] Exploratory spatial data analysis, random function models for spatial data, estimation and modeling of variograms and covariances, ordinary and universal kriging estimators and equations, regularization of variograms, estimation of spatial averages, non-linear estimators, includes use of geostatistical software. Application of hydrology, soil science, ecology, geography and related fields.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Lecture — Required
Equivalent to: MATH 574G, STAT 574G
Also offered as: MATH 574G, STAT 574G
Course typically offered:
Main Campus: Fall

Recommendations and additional information: Linear algebra, basic course in probability and statistics, familiarity with DOS/Windows, UNIX.

GEOG 575: Economics of Water and Environmental Markets and Incentive-based Policies (3 units)
Description: Economic incentives, tradable permits and markets for ecosystem services are pivotal in contemporary water and environmental policy. This class covers theory and application of economic concepts needed to evaluate water and environmental laws and policies; including ecosystem service provision, tradable use permits, benefit cost analysis, externalities, public goods and valuation methodologies. Case studies include federal, state, tribal and international water and environmental policies.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ARL 575, ECON 575, GEOG 575, HWRS 575, RNR 575
Also offered as: AREC 575, ARL 575, ECON 575, HWRS 575, RNR 575
Course typically offered:
Main Campus: Fall

Recommendations and additional information: ECON 300 or ECON 361.
Home department: Agricultural & Resource Economics

GEOG 576: The Land Development Process (3 units)
Description: A case-oriented approach to site selection, rezoning, financing, architectural design, economic feasibility, and other facets of the land development process. Graduate-level requirements include the completion of a series of research projects.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 576, PLAN 576, PLN 576, PLNG 576
Also offered as: PLG 576, RED 576
Co-convened with:
Course typically offered:
Main Campus: Spring

Field trip: Field trip
Home department: Planning

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 576U: The Chinese City: Comparative Perspectives (3 units)
Description: This course asks how the city was understood and urban space was experienced in China from the late imperial period to the twentieth century, from the walled cities of Ming and Qing to the neoliberal remaking of Beijing and Shanghai, passing through the modernist experiments of the Communist and Republican periods. Examining some of the key social, cultural and political factors that shaped urban life, we will address such questions as: how did changes in media shape conceptions of urban space and one's place within it, what did the Chinese urban landscape look like, what were some of its key features, and how did political changes at the national level affect life and governance in the city? Our investigations will also lead us into the realm of cultural and intellectual history. We will look at how such notions as cosmopolitanism, nation-mindedness, and scientific rationality developed in and around the city. In more general term, we will use the case of China to investigate how a history of "modern urban life" and urban space can be written, and what its significance might be. This course maintains a focus on the distinctive character of various Chinese cities while attempting to elucidate deeper commonalties and similarities that shape urban experience in China and elsewhere. Comparisons with other national experiences as well as theoretical reflections on issues of urbanism and urban life will then be integral part of the course.Graduate level requirements: In addition to the undergraduate assignments, you will have to submit a book review every other week. 3-4 pages in length, double-spaced. (No web posting or short paper when a book review is due). Graduate-level work is expected from graduate students in all assignments.
Grading basis: Regular Grades
Career: Graduate

Course Components:	Discussion	Required
	Lecture	Required

Also offered as: CHN 576U, HIST 576U
Co-convened with: GEOG 476U
Course typically offered:
Main Campus: Fall, Spring

Home department: History

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 578: Global Change (3 units)
Description: Analysis of the Earth system through an examination of its component parts (particularly climate and biogeochemistry) and their interactions with human activities, emphasizing information needed to understand modern and future environmental changes. Graduate-level requirements include an in-depth written exercise and additional activities as described in the syllabus.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ECOL 578, GC 578, GEOG 578, HWRS 578, HYDR 578, RNR 578, SW 578
Also offered as: ECOL 578, GC 578, GEOS 578, HWRS 578, RNR 578
Course typically offered:
Main Campus: Fall

Home department: Geosciences
Interdisciplinary Interest Area: ECOL - Ecology & Evolution Bio

GEOG 579: Spatial Statistics and Spatial Econometrics (3 units)
Description: This course provides the statistical and econometric techniques required for the analysis of geocoded data. Identification of spatial heterogeneity and inclusion in a formal regression model. An important aspect of the course is to gain hands-on experience in applying the appropriate techniques and using state-of-the-art software.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Lecture Required
Equivalent to: PLG 577
Also offered as: ECON 579, PLG 579, STAT 579
Course typically offered:
Main Campus: Spring

GEOG 580: Power, Politics and Deforestation in the Brazilian Amazon (3 units)
Description: This course examines the wide variety of causal explanations for deforestation in the Brazilian Amazon and the policy proposals offered by Latin American and North American political scientists, economists, historians, anthropologists, geographers, ecologists, journalists and environmental activists.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 580
Also offered as: LAS 580
Co-convened with: GEOG 480
Course typically offered:
Main Campus: Fall, Spring

Home department: Center for Latin-American Studies

GEOG 583: Geographic Applications of Remote Sensing (3 units)
Description: Use of aircraft and satellite imagery for monitoring landforms, soils, vegetation and land use, with the focus on problems of land-use planning, resource management and related topics. Graduate-level requirements include the completion of a project report.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Lecture Required
Equivalent to: PLAN 583, PLN 583, PLNG 583, RNR 583, SWES 583
Also offered as: ENVS 583, PLG 583, RNR 583
Co-convened with: GEOG 483
Course typically offered:
Main Campus: Spring
Online Campus: Spring

GEOG 590: Remote Sensing for the Study of Planet Earth (3 units)
Description: Remote Sensing for the Study of Planet Earth introduces basic and applied remote sensing science as a means to explore the diversity of our planetary environments (biosphere, atmosphere, lithosphere and hydrosphere) within the radiometric, spectral, spatial, angular and temporal domains of remote sensing systems. This survey course strikes a balance between theory, applications and hands-on labs and assignments. We explore how you can download, process, analyze and interpret multi-sensor data and integrate online remotely sensed data sources/products into your research of interest.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $50
Course Components: Lecture Required
Equivalent to: ARL 590, ARL 590, ATMO 590, GEN 590, GEOG 590, GEOS 590, HWRS 590, MNE 590, OPTI 590, RNR 590, SW 590, SWES 590
Also offered as: ARL 590, ATMO 590, ENVS 590, GEOS 590, HWRS 590, MNE 590, OPTI 590, REM 590, RNR 590
Co-convened with: GEOG 490
Course typically offered:
Main Campus: Fall

Home department: GIDP on Remote Sensing and Spatial Analysis

GEOG 593: Internship (1 - 5 units)
Description: Specialized work on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

GEOG 594: Practicum (1 - 9 units)
Description: The practical application, on an individual basis, of previously studied theory and the collection of data for future theoretical interpretation.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Course typically offered:
Main Campus: Fall, Spring, Summer

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

GEOG 596B: Water Policy in Arizona and Semi-arid Regions (3 units)
Description: This course focuses on current water policy in Arizona, the Colorado River Basin, and other semi-arid regions from a multi-disciplinary perspective. Through readings, research, lectures, discussions, and presentations, the student is exposed to major, current water resource issues and policies to address them. The professor and guest lecturers draw upon their experiences to demonstrate the development, analysis and implementation of real-world water policy.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Equivalent to: GEOG 596B, HWRS 596B, LAW 596B
Also offered as: ENVS 596B, HWRS 596B, LAW 596B, PLG 596B
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Consent of instructor is required.
Home department: Soil, Water, & Environmental Sciences

GEOG 596I: Comparative and International Water Policy (3 units)
Description: This course examines major issues in comparative and international water policy, including water markets, privatization, dams and river basin management, environmental flows, social equity, and water governance. The course is interdisciplinary and builds on law, geography, political economy, and institutional economics.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 2 times.
Also offered as: LAW 596I
Course typically offered:
Main Campus: Fall, Spring

GEOG 596J: Water Management and Policy (3 units)
Description: Management and policy challenges driven by surface water and groundwater scarcity will be assessed for the Southwest US, Mexico, and globally. Critical review of institutions coupled with assessment of emerging management systems will lead to consideration of policy alternatives.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 3 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 596L: Law, Geography, and Property (3 units)
Description: This seminar aims to bring together law, geography, and political economy, where they overlap in matters of nature and environment. Property rights are the central theme. The goals of the course are to bridge the separate worlds of "law-and-society" and environmental studies, and to prepare graduate students to do interdisciplinary legal and policy analysis as part of their academic research.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Also offered as: LAW 596L
Course typically offered:
Main Campus: Fall, Spring

GEOG 596M: Making the Connection between Science and Decision Making (3 units)
Description: This seminar explores concepts at the foundation of the intersection between environmental science and decision, making as well as practical aspects of two-way communication to explore the ways in which exchanges take place between scientists and decision makers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Course typically offered:
Main Campus: Spring

GEOG 597F: Community and School Garden Workshop (2 - 6 units)
Description: This workshop-based course is designed to enable UA undergraduate and graduate students to work in Tucson-area schools and community sites helping stakeholders to plant, harvest and prepare foods from their garden as well as use the garden as a learning space. As a member of a school or community garden team, students are likely to cover a wide range of activities from maintaining a compost pile to administering lesson plans for teaching in the garden to weeding, planting, and organizing work crews. In addition to attending one 3-hour weekend workshop, students are required to attend weekly class meetings on the UA campus. Most of the course, however, revolves around independent and sustained involvement with a Tucson school or community garden. No teaching or gardening experience is required.
Grading basis: Regular Grades
Career: Graduate
Course Components: Workshop Required
Repeatable: Course can be repeated for a maximum of 9 units.
Also offered as: AIS 597F, ENVS 597F, LAS 597F, NSC 597F, PLS 597F, STCH 597F, TLS 597F
Co-convened with: GEOG 497F
Course typically offered:
Main Campus: Fall, Spring

GEOG 597S: Sustainable Urban Development and Design (3 units)
Description: Examines contemporary competition between environment, resources (water, energy), social equity, and economic viability in the community development and revitalization arena. Public policy, planning initiatives, design strategies and technical solutions that bridge the conflicting agendas are analyzed. Field investigation of contemporary cases. Appropriate for students specializing in planning, architecture and landscape architecture. Graduate-level requirements include a case study paper and formal class presentation. The study should include a literature review, and assessment methodology and critical comment.
Grading basis: Regular Grades
Career: Graduate
Course Components: Workshop Required
Equivalent to: GEOG 597S, PLN 597S
Also offered as: PLG 597S, RED 597S
Co-convened with: GEOG 497S
Course typically offered:
Main Campus: Fall

Home department: Planning

GEOG 597T: Housing and Households (3 units)
Description: First of two-course sequence focusing on U.S. housing and community development. Topics covered include housing market projections, housing submarket analysis, housing finance and mortgage lending, household analysis, residential choice and residential mobility. Appropriate for students specializing in urban planning, architecture, urban geography and urban sociology.
Grading basis: Regular Grades
Career: Graduate
Course Components: Workshop Required
Also offered as: PLG 597T
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Graduate status.
Home department: Planning

GEOG 599: Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work. Graduate students doing independent work which cannot be classified as actual research will register for credit under course number 599, 699, or 799.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

GEOG 605: Planning Theory (3 units)
Description: This course shows students how planners frame the notion of public interest in their work, how planning, which is often intervention in the private market, can be justified in a capitalist society, the role that professional ethics play in the life of the planner, and the ways in which various kinds of planners define their job - and then do it. The course includes both the classic work in planning theory and the latest conversations in the theory community but with a strong emphasis on the value of such work for practicing planners.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: GEOG 605, PLAN 605, PLN 605, PLNG 605
Also offered as: PLG 605
Course typically offered:
Main Campus: Fall

Home department: Planning

GEOG 611: Projects in Regional Planning (6 units)
Description: Lectures, laboratory, and field projects covering various aspects of professional practice.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Repeatable: Course can be repeated a maximum of 5 times.
Equivalent to: GEOG 611, GEOG 611, PLAN 611, PLG 611, PLN 611, PLNG 611
Also offered as: PLG 611
Course typically offered:
Main Campus: Spring

Recommendations and additional information: PLG 605; 24 units toward a graduate degree in planning.
Home department: Planning

GEOG 619: Ecology of Savannas, Shrublands, and Woodlands (3 units)
Description: [Taught Spring semester in even-numbered years] The functional ecology and dynamics of biogeographically diverse savanna, shrubland and woodland ecosystems will be examined. Interactions among co-occurring life forms and growth forms will be emphasized with in the context of climate, soils and disturbance.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Equivalent to: ARL 619, ECOL 619, GEOG 619, SWES 619
Also offered as: ARL 619, ECOL 619, ENVS 619, RAM 619
Course typically offered:
Main Campus: Spring (even years only)

Home department: Range Management

GEOG 641: Water Law (3 units)
Description: The course in Water Law traditionally emphasizes state law rules that govern rights to use surface water and groundwater throughout the country. Although we will give ample attention to the prior appropriation doctrine, riparian water rights, and various systems for regulating groundwater use, this course will also emphasize how federal law may impact water rights. Increasingly, environmentalists and others claim that there are public rights to water that may take precedence over rights under the prior appropriation system.
Grading basis: Alternative Grading: ABCDE/SP
Career: Graduate
Course Components: Lecture Required
Also offered as: ENVS 641, HWRS 641, LAW 641, MNE 641
Course typically offered:
Main Campus: Spring

Home department: Law

GEOG 658: Critical Methodological Practice (3 units)
Description: A critical theory approach to method (primarily qualitative) in human geography and related social sciences; theoretical derivation of research questions; retheorization through research findings.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall

GEOG 689: History of Geographic Thought (3 units)
Description: History of geographic philosophy and methodology.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture Required
Course typically offered:
Main Campus: Fall

Recommendations and additional information: 15 units of geography.

GEOG 695A: Current Topics in Geography (1 unit)
Description: The exchange of scholarly information and/or secondary research, usually in a small group setting. Instruction often includes lectures by several different persons. Research projects may or may not be required of course registrants.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Colloquium Required
Repeatable: Course can be repeated a maximum of 7 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 695B: Preparing Future Faculty in Geography: Professional Development (1 unit)
Description: A course designed to assist advanced graduate students in obtaining academic employment.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 695C: Preparing Future Faculty: College Teaching (1 unit)
Description: Introduces graduate students to pedagogical theory, skills, practice and technological tools for college classrooms. Covers learning philosophies, cognitive skills, assessment, classroom dynamics and ethics. Provides practice in developing and presenting course materials.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 695D: Preparing Future Faculty; Writing Workshop/Proposal Development (1 unit)
Description: Course is to assist advance graduate students in writing up a geographic research project or developing a proposal.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Colloquium Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 696A: Economic Geography (3 units)
Description: Based on the exchange of information, usually in a small group setting, this course examines contemporary developments in economic geography. The selected topics rotate according to the interests of the faculty convener and the graduate student enrollees. Generally grounded in economic theories of space and place, typical topics include regional inequalities and development; location theory, urban economics, and transportation; marxist and post-marxist political economy; retailing and consumption; alternative economies; resources and agriculture; gender and work; migration and economic change; institutional approaches; the intersection of culture and economy; and money, finance, and trade. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696B: Cultural Geography (3 units)
Description: Based on the exchange of scholarly information, usually in a small group setting, this course examines contemporary developments in cultural geography. The selected topics rotate according to the interests of the faculty convener and the graduate student enrollees. Generally grounded in cultural theories of space and place, typical topics include transnationalism, globalization, resistance, identity, landscape, postcolonialism, social nature, the body, and media. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696C: Physical Geography (3 units)
Description: Based on the exchange of scholarly information, usually in a small group setting, this course examines contemporary developments in physical geography. The selected topics rotate according to the interests of the faculty convener and the graduate student enrollees. Generally grounded in theories of biophysical space, typical topics include coupled natural and human systems, ecosystem disturbance and resiliency, energy and mass transfers, measurement and modeling of physical systems. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696F: Advanced Methods and Techniques (3 units)
Description: Based on the exchange of scholarly information, usually in a small group setting, this course examines contemporary developments in geographic methodology. The selected topics rotate according to the interests of the faculty convener and the graduate student enrollees. Generally following on a base of advanced knowledge in quantitative and/or qualitative methodologies, typical topics include spatial statistics, spatial econometrics, mathematical programming, simulation, ethnography, participant observation, participatory action research, content and discourse analysis, and visual methods. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696G: Urban Geography (3 units)
Description: Based on the exchange of scholarly information, usually in a small group setting, this course examines contemporary developments in urban geography. The selected topics rotate according to the interests of the faculty convener and the graduate student enrollees. Generally grounded in theories of urban space, typical topics include urban politics and governance, economic restructuring, alternative urbanisms, gender and race, urban subcultures, migration and cities, urban form and the built environment, world cities, and transportation. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696I: Political Ecology (3 units)
Description: This course is a multi-disciplinary approach to understanding resource access by different people, the institutions and environmental conditions through which resource access is mediated, and the sorts of environmental change that these systems may create. It also involves an analysis of the political institutions that have a bearing on environmental outcomes. It frames local resource use systems within the 'nests' of processes that help to shape them - e. g. political economy, globalization, gender relations, and historically produced 'narratives.'
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Equivalent to: HWR 696I, NES 696I, POL 696I
Course typically offered:
Main Campus: Fall, Spring

GEOG 696J: Water Resources Geography (3 units)
Description: Based on the exchange of scholarly information, usually in a small group setting, this course examines contemporary developments in water resources geography. The selected topics rotate according to the interests of the faculty convener and the graduate student enrollees. Typical topics include water issues in the Western U.S., comparative and international water policy, arid lands, border regions, a warming world, groundwater management, water and urban growth, energy-water linkages, water rights, markets, and transfers, and public and cultural perceptions of water. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 10 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696K: Development and the Latin American Experience (3 units)
Description: The aims of this course are to 1) introduce students to general theories of development from development studies, anthropology, geography and related fields, 2) introduce students to critiques of development practices that have emerged from the Latin American experience, and 3) provide an opportunity for students to compare experiences from their own work (within or outside of Latin America) with the general theories and case studies offered in class.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 4 times.
Equivalent to: GEOG 696K
Also offered as: LAS 696K
Course typically offered:
Main Campus: Spring

Home department: Center for Latin-American Studies

GEOG 696M: Geography and Dendrochronology (1 - 3 units)
Description: This graduate-level seminar will focus on a review and discussion of the literature on various topics in dendrochronology. The goal of the seminar is to become familiar with the current body of research on the featured topic, and to critique a set of papers that have appeared in the peer-reviewed literature.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated for a maximum of 18 units.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696N: Geography and Social Theory (3 units)
Description: Based on the exchange of scholarly information, usually in a small group setting, this course examines developments in socio-spatial theory. Selected topics and thinkers will rotate according to the interests of the faculty convener and the graduate students enrolled. Course organization may be historical, e.g., based on a survey of trends in socio-spatial theory, or thematic, e.g., examining the intersection between spatial theory and such topics as politics, resistance, feminism, globalization, etc. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 3 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 696O: Adaptation & Resilience in Water Resources Systems (3 units)
Description: Climate change, urban growth, energy demand, and global food trade alter water in coupled human-natural systems. This seminar addresses adaptation and resilience using material on river basins, aquifers, infrastructure, policy, and institutions from Southwest U.S., transboundary U.S.-Mexico, and international cases.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 696Q: Participatory Systems Design and Delivery (3 units)
Description: This seminar is a graduate experience intended to improve the participants' ability to design, deliver and measure the performance of Participatory and Collaborative Systems (PCS) in their own work and research. The seminar covers philosophical considerations of PCS, performs a survey across a range of participatory and collaborative methods, and examines state-of-the-art efforts in PCS across a range of disciplines and application domains using case studies from a range of journals. To the degree possible during the semester, there will be active participation in a mandated public meeting process.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Course typically offered:
Main Campus: Fall, Spring

GEOG 696R: International Environmental Policy (3 units)
Description: This seminar examines the challenges of understanding and governing environmental change at the international scale. The goal of the seminar is to provide an overview of the major scholars, theories and debates in the governance of international environmental issues such as climate change, land use, oceans, biodiversity, and trans-boundary resources; to critically assess scholarship and policy; and to understand the origins and impacts of international environmental policy in different countries and geographic regions.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar Required
Repeatable: Course can be repeated a maximum of 2 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 699: Independent Study (1 - 6 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work. Graduate students doing independent work which cannot be classified as actual research will register for credit under course number 599, 699, or 799.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 900: Research (1 - 6 units)
Description: Individual research, not related to thesis or dissertation preparation, by graduate students.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.

GEOG 910: Thesis (1 - 6 units)
Description: Research for the master's thesis (whether library research, laboratory or field observation or research, artistic creation, or thesis writing). Maximum total credit permitted varies with the major department.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring

GEOG 920: Dissertation (1 - 9 units)
Description: Research for the doctoral dissertation (whether library research, laboratory or field observation or research, artistic creation, or dissertation writing).
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring