

GRG - Geography

Geography: GRG

Lower-Division Courses

GRG 301C, 401C (TCCN: GEOG 1301). The Natural Environment.

An introduction to the study of the Earth from a holistic perspective including geologic, atmospheric, ecological, and water sciences and its relevance to present-day environmental problems. Three lecture hours and one-and-one-half laboratory hours a week for one semester.

GRG 301K (TCCN: GEOL 1347). Weather and Climate.

A survey of meteorological phenomena and climatological processes of the earth. Three lecture hours a week for one semester.

GRG 302L. Landscapes and Cosmvision in Mesoamerica.

Explore the ancient civilizations of Mesoamerica, the ways in which they are studied, the landscapes they inhabited, their worldview, and the persistence of the past into the present. Discover how different societies manifested a core set of beliefs shared by all Mesoamerican civilizations while at the same time maintaining local cultural identities. Assess changes in Mesoamerica both spatially and temporally from the Archaic Period through the Spanish Conquest, colonialism, and into modern times. Three lecture hours a week for one semester. Geography 302L and 302S (Topic: Lanscp and Cosmovisn Mesoam) may not both be counted. Offered on the letter-grade basis only.

GRG 302S. Special Topics in Geography.

Three lecture hours a week for one semester. May be repeated for credit when the topics vary.

GRG 304E, 404E. Environmental Science: A Changing World.

Surveys the major global environmental concerns affecting the Earth and its residents from the perspectives of the environmental sciences. Three lecture hours and one-and-one-half laboratory hours a week for one semester.

GRG 305 (TCCN: GEOG 1302). This Human World: An Introduction to Geography.

Introductory survey of human geography, including human-environment relations, cultural patterns and processes, and geography's relation to other fields of study. Three lecture hours and one laboratory hour a week for one semester.

GRG 306C. Conservation.

Introduction to environmental management, with emphasis on the major causes and consequences of environmental degradation. The course is organized around the premise that people cannot solve environmental problems unless they know how and why they occur; a major objective is to identify and understand the sociocultural forces that drive environmental degradation. Three lecture hours a week for one semester.

GRG 307C. Introduction to Urban Studies.

Same as Urban Studies 301. A multidisciplinary study of cities and complex urban environments; historical and contemporary issues from both national and international perspectives. Three lecture hours a week for one semester. Geography 307C and Urban Studies 301 may not both be counted.

GRG 309C. Creating the Sustainable Society.

Same as Sociology 309C. Overview of sustainability as something human beings must strive to create in an era of global warming and ever greater social inequalities, both between and within countries. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 302P (Topic: Creating Sustainable Societies), 309C, Sociology 304 (Topic: Creating Sustainable Societies), 309C.

GRG 310C, 410C. Spatial Data and Analysis.

Fundamental concepts in spatial data acquisition, analysis, and presentation, with emphasis on the needs of professionals in cartography, geographic information systems (GIS), and remote sensing. Three lecture hours and one-and-one-half laboratory hours a week for one semester.

GRG 312E, 412E. Digital Earth.

Explore concepts in geospatial technologies that are becoming increasingly important tools in research, policy, and everyday life. Discuss geospatial data sources (ex. GPS, citizen science, satellite imagery), applications (ex. disaster relief, biodiversity conservation, disease spread), and broader implications of their use (ex. privacy, ethical, legal issues). For each semester hour of credit earned, the equivalent of one lecture hour a week for one semester.

GRG 319. Geography of Latin America.

Same as Latin American Studies 319. Adaptations to population growth and spatial integration in cultural landscapes of great natural and ethnic diversity; problems of frontiers and cities. Three lecture hours a week for one semester.

GRG 119S, 219S, 319S, 419S, 519S, 619S, 719S, 819S, 919S. Topics in Geography.

This course is used to record credit the student earns while enrolled at another institution in a program administered by the University's Study Abroad Office. Credit is recorded as assigned by the study abroad adviser in the Department of Geography and the Environment. University credit is awarded for work in an exchange program; it may be counted as coursework taken in residence. Transfer credit is awarded for work in an affiliated studies program. May be repeated for credit when the topics vary.

Upper-Division Courses

GRG 320J. Environmental Justice.

Examine the socio-political, economic, and racialized history of both environmental ruin and environmental justice via a critical geographic lens connecting feminist political ecology, antiracist and abolitionist ecologies, decolonial geographies, and critical physical geographies. Three lecture hours a week for one semester Only one of the following may be counted: Geography 320J, 356 (Topic: Environmental Justice), Liberal Arts Honors 350 (Topic: Environmental Justice). Offered on the letter-grade basis only. Prerequisite: Upper-division standing.

GRG 320K. Land and Life: The American Southwest.

Historical geography of the southwestern United States, emphasizing the ways of life of American Indian, Spanish, mestizo, and Anglo cultures. Three lecture hours a week for one semester, with one field trip to be arranged. Prerequisite: Upper-division standing.

GRG 320M. Geography of Media.

Explores communication media from a geographical perspective. Subjects include place images, changing attitudes about public and private spaces, social networking, and the geography of communications infrastructure. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 320M, 356T (Topic:

Geography of Media), 356T (Topic 7) Offered on the letter-grade basis only. Prerequisite: Upper-division standing.

GRG 320N. Exhibitions and Public Spectacle.

Same as Comparative Literature 323 (Topic 46), European Studies 347 (Topic 41), and German, Scandinavian, and Dutch Studies 361N. Investigate exhibits, world's fairs, museum, monuments, theme parks, and historical reconstructions from Europe and the US, with attention to images of how their sponsoring nations or other entities want to be seen. Examine evidence for both the good and bad sides of national pride and identity. Explore examples of how large-scale culture projects and the public interact. Consider the lasting marks left on the cities and countries sponsoring them. Three lecture hours a week for one semester. Only one of the following may be counted: Comparative Literature 323 (Topic: Exhibitionism and Public Spectacle), 323 (Topic 46), European Studies 347 (Topic: Exhibitionism and Public Spectacle), 347 (Topic 41), Geography 320N, 356T (Topic: Exhibitionism and Public Spectacle), German, Scandinavian, and Dutch Studies 360 (Topic: Exhibitionism and Public Spectacle), 361N. Prerequisite: Upper division standing.

GRG 320P. Political Geography.

Explores how social power relations play out across space, and how spatial patterns and processes underlie various forms of social power. Focus on borders, conflicts, peacemaking, migration, environmental politics, urban politics, embodiment, emotion and affect. Three lecture hours a week for one semester. Offered on the letter-grade basis only. Prerequisite: Upper-division standing and Geography 305.

GRG 320U. Urban Imaginaries.

Same as American Studies 370 (Topic 79) and Urban Studies 321M. Use science fiction literature, film, and other cultural artifacts as a platform to launch an examination into the central concept of urban imaginaries. Discuss the politics (and potential) of urban representation as well as understand how urban imaginaries influence everyday urban life and the ongoing production of urban space and place. Three lecture hours a week for one semester. Only one of the following may be counted: American Studies 370 (Topic: Urban Imaginaries), 370 (Topic 79), Geography 320U, Urban Studies 321M. Prerequisite: Upper-division standing.

GRG 321D. Development and Social Movement in East and Southeast Asia.

Same as Asian Studies 361J. Examine the notions of development and the ways in which development is associated with state building, moral economy, political performance, and accumulation regimes. Explore the development of civil society and social movement in East Asia, and explanations of the mechanisms and drivers of displacement. Conceptualize the "Right to the City", and alternative right-based approaches to land, housing, infrastructure, commons and public resources. Three lecture hours a week for one semester. Only one of the following may be counted: Asian Studies 361 (Topic: Development and Movement), 361J, Geography 321D, 356T (Topic: Development and Movement). Prerequisite: Upper-division standing.

GRG 321F. Food in the Racialized City.

Same as African and African Diaspora Studies 352P and American Studies 371C. Explore a variety of issues related to producing, accessing, and consuming food in city spaces in the context of racial inequities. Investigate and question constructs such as "food" and "city" as means of exploring different points of view and approaches to studying not only food and cities but also various approaches to food justice. Three lecture hours a week for one semester. Only one of the following may be counted: African and African Diaspora Studies 352P, 370 (Topic:

Food in the Racialized City), American Studies 371C, Geography 321F. Prerequisite: Upper-division standing.

GRG 321L. Archaeology of Climate Change.

Same as Anthropology 324L (Topic 57). Examines why climate changes, the methods for recording climate change, and includes case studies of the varied responses of past human societies to climate change in different geographic regions and time periods with varying socio-political and economic systems. Three lecture hours a week for one semester. Only one of the following may be counted: Anthropology 324L (Topic: Archaeology of Climate Change), 324L (Topic 57), Geography 321L, 356 (Topic: Archaeology of Climate Change). Prerequisite: Upper-division standing.

GRG 321U. Race, Social Justice, and the City.

Same as Urban Studies 322R. Examine the way that race and inequality are built into the structures and ideas surrounding urban life through the spatial and racial structures of capitalist development, racialized migration, and redevelopment and gentrification campaigns. Analyze how United States cities are racial geographies. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 321U, Urban Studies 322R, Urban Studies 354 (Topic: Race, Social Just & the City). Prerequisite: Upper-division standing.

GRG 322D. Human Health and the Environment.

Same as Urban Studies 332D. Introduction to environmental health concepts. Examine current events to explore the relationship between environment and health and whether an environmental condition is or is not an important threat to health. Discuss the complexity of determining "proof" in this field. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 322D, 356T (Topic 9), Urban Studies 332D, 350 (Topic 2). Prerequisite: Upper-division standing.

GRG 322G. Politics of Protecting the Great Barrier Reef.

Same as Government 347P. Examine the numerous environmental challenges Australia's Great Barrier Reef (GBR) faces. Explore the livelihoods of the people who depend on or impact the GBR, and the people who are trying to save it. Three lecture hours a week for one semester. Geography 322G and Government 347P may not both be counted. Prerequisite: Upper-division standing.

GRG 322L. Geographies of Latin American to United States Migration.

Same as Latin American Studies 325E. Examine the contemporary complex multi-scalar origins, patterns, and processes of Latin American and Caribbean migration and settlement in the United States. Through a place-specific, spatially contextualized, and historically situated approach, explore the collective and individual experiences of migrants, asylum seekers, and refugees from select nations including: Mexico, Guatemala, Honduras, El Salvador, Puerto Rico, the Dominican Republic, Haiti, and Cuba. Analyze the multi-layered factors shaping diverse Latin American migratory patterns and processes. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 322L, 356T (Topic: Geog of Lat American-U.S. Migr), Latin American Studies 325E, 330 (Topic: Geog of Lat American-U.S. Migr). Prerequisite: Upper-division standing.

GRG 322M. Maya Art and Architecture.

Same as Anthropology 323V, Art History 347M, and Latin American Studies 327 (Topic 5). Introduction to the artistic traditions of the ancient Maya, tracing their development up to the time of European contact. Students will examine various important themes of Maya culture including history, ritual, and cosmology as revealed in sculpture, hieroglyphs, painting, and architectural design. Three lecture hours a week for one semester. Only one of the following may be counted:

Anthropology 323V, 324L (Topic: Maya Art and Architecture), Art History 347M, Latin American Studies 327 (Topic 5), Geography 322M, 356T (Topic: Maya Art/Architecture).

GRG 323K. South America: Nature, Society and Sustainability.

Same as Latin American Studies 330 (Topic 3). Field study of environmental and social change in selected landscapes in South America, such as protected areas; places of food production; transportation routes; migrant landscapes; urban areas; sites of cultural and historical importance; and issues of human rights. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 323M. Literature, Culture, and Ecology in Northern and Central Europe.

Same as Comparative Literature 323K, European Studies 347 (Topic 61), and German, Scandinavian, and Dutch Studies 362M. Explore a variety of texts, films, and artifacts from Northern and Central Europe for the insights they provide about the interrelationships between nature and culture and strategies for developing a sustainable relationship to the world around us. Three lecture hours a week for one semester. Only one of the following may be counted: Comparative Literature 323K, European Studies 347 (Topic 61), Geography 323M, German, Scandinavian, and Dutch Studies 362M. Prerequisite: Upper-division standing.

GRG 324E. Applications and Ethics of Digital Spatial Technologies.

Explore the applications and ethical considerations of remote sensing, the Global Positioning System (GPS), and Geographic Information System (GIS) technologies and practice. Three lecture hours a week for one semester. Geography 324E and 356T (Topic: Dig Spatial Tech: App/Ethcs) may not both be counted. Prerequisite: Upper-division standing.

GRG 324F. Race, Capitalism, and the Environment.

Same as African and African Diaspora Studies 351U and Women's and Gender Studies 340 (Topic 82). Three lecture hours a week for one semester. Only one of the following may be counted: African and African Diaspora Studies 351U, 372C (Topic: Race/Capitalism/Environment), Geography 324F, 356T (Topic: Race/Capitalism/Environment), Women's and Gender Studies 340 (Topic: Race/Capitalism/Environment), 340 (Topic 82). Prerequisite: Upper-division standing.

GRG 324M. Sustainable Maya Geographies - Past to Future.

Same as Anthropology 326M and Latin American Studies 330 (Topic 6). Explore landscapes, conservation, and human-environment dynamics in the Maya region of Central America from more than 10,000 years ago to modern times. Compare sustainable practices from the past with those of indigenous Maya communities today to guide the future. Three lecture hours a week for one semester. Only one of the following may be counted: Anthropology 326M, Geography 324M, 356T (Topic: Sust Maya Geog: Past to Future), Latin American Studies 330 (Topic 6). Prerequisite: Upper-division standing.

GRG 325. Geography of Texas.

Texas as an environmental and cultural borderland: as a transition zone between plains and mountains, humid and arid, South and West, Anglo-America and Latin America. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 325E. The Healthy, Livable City.

Same as Urban Studies 325E. Explore the design of the built environment and its potential for addressing and preventing many childhood and adult health concerns in the United States. Examine how to create healthy, walkable, vital communities for all. Three lecture hours a week for one semester. Only one of the following may be counted: Geography

325E, Geography 356 (Topic: The Healthy, Livable City), Urban Studies 325E, 352 (Topic: The Healthy, Livable City). Prerequisite: Upper-division standing.

GRG 326. Regions and Cultures of Europe.

Same as European Studies 346 (Topic 19) and Russian, East European, and Eurasian Studies 345 (Topic 2). Spatial patterns in Europe, with emphasis on cultural, historical, and political geography. Only one of the following may be counted: European Studies 346 (Topic: Regions and Cultures of Europe), 346 (Topic 19), Geography 326, Russian, East European, and Eurasian Studies 345 (Topic 2). Prerequisite: Upper-division standing.

GRG 326C. Sensing: Elemental Media.

Same as Anthropology 323U and Urban Studies 320E. Explore a sensory ethnographic investigation of urban ecology, organized around air, water, earth, and fire as themes for engaging with the city through media and the senses. Three lecture hours a week for one semester. Only one of the following may be counted: Anthropology 323U, 324L (Topic: Sensing: Elemental Media), Geography 326C, Urban Studies 320E. Prerequisite: Upper-division standing.

GRG 326G. International Political Economy of Lower-Income Countries.

Same as Government 366M and Sociology 324P. Explore the ways that China, India, Brazil and other lower-income countries are transforming the patterns in global finance, trade, aid, women's empowerment, and the control or corruption. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 326G, Government 355M (Topic: Intl Pol Econ Low-Incm Countrs), 366M, Sociology 324P. Prerequisite: Upper-division standing.

GRG 327. Geography of the Former Soviet Union.

Same as Russian, East European, and Eurasian Studies 345 (Topic 4: Geography of the Former Soviet Union). A systematic introduction to cultural, physical, political, and economic geography of the former Soviet Union. Focus on the fundamental transformation that the former Socialist Union Republics, now sovereign states, have undergone since 1991. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 327G. Introduction to Geospatial Artificial Intelligence.

Focus on artificial intelligence (AI) and machine learning (ML) methods and their applications on geospatial problems. Explore python programming and GIS data preparation for machine learning models, ML foundations, regression, clustering, decision tree and random forest, neural network, embedding, and location representation learning. Three lecture hours and one laboratory hour a week for one semester. Geography 327G and 356T (Topic: Intro to Geospatial AI) may not both be counted. Offered on the letter-grade basis only. Prerequisite: Upper division standing

GRG 328E. Geography in Eastern Europe and Eurasia.

Same as Comparative Literature 323 (Topic 78), History 361U, and Russian, East European, and Eurasian Studies 335 (Topic 37). Explore alternatives to nation-state imaginaries across Eastern Europe and Eurasia. Examine spatial thinking, utopia, dystopia, the history of geosciences, counter-mapping, and the decolonial geopoetics of space. Three lecture hours a week for one semester. Only one of the following may be counted: Comparative Literature 323 (Topic 78), Geography 328E, History 361U, Russian, East European, and Eurasian Studies 335 (Topic 37). Prerequisite: Upper-division standing.

GRG 328F. Black Geographies.

Same as African and African Diaspora Studies 352Q, American Studies 371D, and Anthropology 323O. Explore the relationship between Blackness and the production of space and place. Examine the tensions and possibilities that emerge when Black people are rendered un-geographic as a fundamental component of racial capitalism while they are simultaneously creating spaces of freedom under constant threats to Black life. Three lecture hours a week for one semester. Only one of the following may be counted: African and African Diaspora Studies 352Q, 370 (Topic: Black Geographies), American Studies 371D, Anthropology 323O, Geography 328F. Prerequisite: Upper-division standing.

GRG 328L. Asian Diaspora on Indigenous Lands.

Same as Asian American Studies 330I. Explore Indigenous and Asian entanglements and solidarities on Turtle Island (North America) and the Pacific. Examine settler colonialism, racial capitalism, war and militarism, racism and power, and environmental change. Three lecture hours a week for one semester. Only one of the following may be counted: Asian American Studies 335 (Topic: Asian Dias on Indigen Lands), 330I, Geography 328L. Prerequisite: Upper-division standing.

GRG 129S, 229S, 329S, 429S, 529S, 629S, 729S, 829S, 929S. Topics in Geography.

This course is used to record credit the student earns while enrolled at another institution in a program administered by the University's Study Abroad Office. Credit is recorded as assigned by the study abroad adviser in the Department of Geography and the Environment. University credit is awarded for work in an exchange program; it may be counted as coursework taken in residence. Transfer credit is awarded for work in an affiliated studies program. May be repeated for credit when the topics vary.

GRG 330F. Geographies of International Development in Africa.

Same as African and African Diaspora Studies 340M. Critically examines the major approaches to "Development" in colonial and postcolonial eras, with a focus on a range of African resources: from water to wildlife, forests to farms, airways to rangelands, and including a consideration of African bodies themselves as sites of development and resistance. Three lecture hours a week for one semester. Only one of the following may be counted: African and African Diaspora Studies 340M, 372F (Topic: Intl Development in Africa), 372F (Topic 1), Geography 330F, 356T (Topic: Intl Development in Africa), 356T (Topic 10). Prerequisite: Upper-division standing.

GRG 330L. Lidar Analysis.

Discuss the fundamental concepts and applications of light detection and ranging (lidar). Assess aerial and ground-based lidar including the quality of the data, how to process the raw data, and analysis of data. Three lecture hours a week for one semester. Geography 330L and 356T (Topic: Lidar Analysis) may not both be counted. Prerequisite: Geography 460G or 462K.

GRG 330W, 430W. Water and Watersheds.

Exposure to numerical analyses techniques developed by hydrologists and to fundamental equations controlling water transfer over and through earth materials. Learn how to administer hydrologic applications to practical problems in physical geography, geology, civil engineering, ecology, and environmental sciences. For 330W, three lecture hours a week for one semester; for 430W, three lecture hours and one-and-one-half laboratory hours a week for one semester. Geography 330W and 356 (Topic: Water and Watersheds) may not both be counted. Prerequisite: Upper-division standing and Geography 301C.

GRG 331E. East European Transnational Worlds to 1914.

Same as History 361T and Russian, East European, and Eurasian Studies 335 (Topic 38). Examine an overview of major developments in the economic, political, social, cultural, and gender and sexuality fields of East European history before 1914. Explore diplomacy, institutional legacies of war and peace, urban and rural developments and inequalities, spaces of language and religion, race, labor migration, and the arts. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 331E, History 361T, Russian, East European, and Eurasian Studies 335 (Topic 38). Prerequisite: Upper-division standing.

GRG 331K. Nature, Society, and Adaptation.

Same as Anthropology 324L (Topic 17). Long term trajectories of change in human environment relationships, including issues of human evolution and human nature, violence, population, food, agriculture, urbanization, globalizing modernization, and environmental impacts; issues of sustainability, cultural survival, human rights, and environmental protection. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 332L. Community and Citizen Science.

Examine the contributions of volunteered geographic information (VGI) to geographic knowledge alongside an analysis of alternative forms of community-based knowledge production. Explore an overview of citizen science, community science, and VGI datasets. Develop and carry out community-based participatory research projects informed by the growing literature on community and citizen science. Three lecture hours a week for one semester. Geography 332L and 356T (Topic: Community and Citizen Science) may not both be counted. Offered on the letter-grade basis only. Prerequisite: Upper division standing

GRG 333C. Severe and Unusual Weather.

A continuation of Geography 301K, focuses on atmospheric hazards such as severe thunderstorms and their offspring (hail, lightning, tornadoes, damaging winds and flash floods) as well as tropical cyclones. Covers human risk perception in relation to atmospheric hazards. Three lecture hours a week for one semester, with additional field hours to be arranged. Prerequisite: Geography 301K.

GRG 333K. Climate Change.

Examines changes in climatic systems over both short and long time periods in relation to impacts on physical and ecological systems. Discusses past, present, and future changes in climatic conditions and the methods used to make those evaluations. Three lecture hours a week for one semester. Geography 333K and 356T (Topic: Climate Change) may not both be counted. Prerequisite: Upper-division standing.

GRG 334. Conservation, Resources, and Technology.

Analysis of the relationship between the human population and its resource base, with particular emphasis on current problems in environmental resource management. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 334E. Children's Environmental Health.

Discuss environmental health issues as they pertain to children's health. Focus on emerging scientific and public health issues such as water quality, air pollution, endocrine-disrupting chemicals, and the food environment. Three lecture hours a week for one semester. Geography 334E and 356 (Topic 1) may not both be counted. Prerequisite: Upper-division standing.

GRG 334K. Soils.

Morphology, genesis, properties, and distribution of world soils. Factors of soil formation. Three lecture hours a week for one semester.

Prerequisite: Upper-division standing; and six semester hours of coursework in physical geography or one or more of the geological or natural sciences, or the equivalent.

GRG 334L. Vulnerability to Natural Hazards.

Same as Latin American Studies 330 (Topic 5). An interdisciplinary approach, set right at the nexus of both physical and human geography, to studying the types of natural disasters that occur throughout Earth with a focus on tropical areas. Explore a region's susceptibility to natural disasters by studying the physical phenomena that incite specific hazards so that their spatial distribution can be outlined. Utilize theoretical frameworks that can expose the social causes of human vulnerability, the political repercussions of disasters, and how disaster response varies from country to country depending on varying political stances and economic conditions. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 334C, 334L, Latin American Studies 330 (Topic: Environment Hazards Latin America/Caribbean), 330 (Topic 5). Prerequisite: Upper-division standing.

GRG 335C. Quaternary Landscapes.

Changing physical and biotic landscapes on the Ice Age earth during the last two million years. Reconstruction of Quaternary geomorphic landscapes based on principles and applications of geochronology and paleoclimatology. Three lecture hours a week for one semester. Geography 335C and 385C may not both be counted. Prerequisite: Upper-division standing and Geography 301C.

GRG 335D. Anthropocene.

Evaluates the role of humans in changing Earth systems. Examines the evidence used to reconstruct past environments, to decipher the ecological and biogeographical consequences of land use, to measure altered surface processes, to distinguish the anthropogenic contribution to climate change, and to predict likely future scenarios. Explores the interaction of human history with altered biophysical patterns and processes. Assesses the recognition of the Anthropocene as a potential new epoch in Earth history, including the implications of that recognition for environmental stewardship. Three lecture hours a week for one semester. Geography 335D and 356T (Topic: Anthropocene) may not both be counted. Offered on the letter-grade basis only. Prerequisite: Upper-division standing, and three semester hours of coursework in physical geography or one of the geological or natural sciences.

GRG 335K. Mountain Geocology.

Geological evolution of mountains. Physical geography of mountains: climates, soils, vegetation, landforms and geomorphic processes. Three lecture hours a week for one semester. Prerequisite: Upper-division standing and six semester hours of coursework in physical geography or one or more of the geological or natural sciences.

GRG 335N. Landscape Ecology.

The study of spatial patterns in the earth's biosphere found within landscapes, typically areas measured in square kilometers. Examines the processes that create those patterns, drawing from ecology, biogeography, and many other disciplines. Also explores the practical applications of landscape ecology to the study of natural environments and those managed or altered by human activities. Three lecture hours a week for one semester. Geography 335N and 356T (Topic: Landscape Ecology) may not both be counted. Prerequisite: Upper-division standing and three semester hours of coursework in physical geography or one of the geological or natural sciences.

GRG 336. Contemporary Cultural Geography.

Same as Urban Studies 340. Recent theoretical developments in cultural geography, with a focus on landscapes and the everyday practices that imbue them with meaning; the ways those meanings are contested and

are the foci of struggle; and how the relationship between culture and space plays a central role in the social construction of identity. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 336, Urban Studies 340, 354 (Topic 8). Prerequisite: Upper-division standing.

GRG 336C. National Parks and Protected Areas.

Introduces current conservation principles and management strategies; outlines the challenges, changes, and dilemmas associated with protected areas. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 337. The Modern American City.

Same as Architecture 350R (Topic 1) and Urban Studies 337. Issues facing residents of United States cities, such as transportation and housing, poverty and crime, metropolitan finance, environmental and architectural design; historical/comparative urban evolution. Three lecture hours a week for one semester. Only one of the following may be counted: Architecture 350R (Topic 1), Geography 337, Urban Studies 337, 352 (Topic 1). Prerequisite: For students in the School of Architecture, upper-division standing; for others, upper-division standing and consent of instructor.

GRG 338C. Rivers and Landscapes: Fluvial Geomorphology.

Drainage basin evolution and channel adjustment, variability of river systems in differing geomorphic regimes, relationships between fluvial systems and other components of physical geography, and the role of humans as geomorphic agents. Three lecture hours a week for one semester, with additional field hours to be arranged. Prerequisite: Upper-division standing; and Geography 301C or Geological Sciences 401, or the equivalent.

GRG 339, 439. Process Geomorphology.

Analysis of geomorphic processes and their effects on landform development. For 339, three lecture hours a week for one semester; for 439, three lecture hours and one-and-one-half laboratory hours a week for one semester. Prerequisite: Upper-division standing, and credit or registration for Geography 301C or Geological Sciences 401.

GRG 339K. Environment, Development, and Food Production.

Assessment of various types of agriculture with regard to environmental factors and management techniques. Three lecture hours a week for one semester. Geography 339K and 390S may not both be counted. Prerequisite: Upper-division standing.

GRG 340D. Political Ecology of Globalization and Environmental Degradation.

Study of current environmental problems from the perspective of political ecology, which critically examines political, economic, and social relations between humans and the natural world. Uses case studies from Africa, Latin America, Asia, and the Middle East to address climate change, deforestation, desertification, biodiversity, and environmental justice. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 440L. Landuse/Landcover Change Practicum.

Focuses on best practices for classifying and mapping land use and land cover, as well as how they change over time in an experiential learning environment. Develop testable hypotheses answered by the original data analysis and interpretation. Two lecture hours and three laboratory hours a week for one semester. Geography 440L and 356T (Topic: Landuse/Landcover Change Practicum) may not both be counted. Prerequisite: Upper-division standing.

GRG 340U. Internship and Service Learning.

Same as Urban Studies 360. Internship experience in an urban studies-related public or nonprofit agency. The opportunity to apply the knowledge, theory, and understanding gained from courses in areas of specialization to urban issues in a professional setting. Includes an academic service-learning component. Approximately five to ten hours a week for one semester. Only one of the following may be counted: Geography 340U, 356T (DIRECTED INTRNSHPS IN URB STDS), Urban Studies 360. Prerequisite: Upper-division standing; and Urban Studies 301 and 315.

GRG 341K. Landscapes of Mexico and Caribbean America.

Same as Latin American Studies 330 (Topic 2: Landscapes of Mexico and Caribbean America). The natural regions and cultural landscapes of Mexico, Central America, and the West Indies. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 342C. Sustainable Development.

Historical and contemporary analysis of international development with a focus on the prospects for environmental sustainability. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 342N. Sustainable Landscapes and Seascapes.

Survey the ecological, economic, and social dimensions of sustainable uses of land-based and aquatic natural resources. Examine the sustainability of landscapes utilized for forestry, farming, agroforestry, and rangeland systems, as well as the riverscapes and seascapes utilized by people. Three lecture hours a week for one semester. Geography 342N and 356T (Topic: Sus Landscapes & Seascapes) may not both be counted. Offered on the letter-grade basis only. Prerequisite: Upper-division standing. Credit or registration for Geography 335N is recommended.

GRG 342S. Sustainability, Equity, and Health.

Same as Health and Society 347E. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 342S, 356 (Topic: Sustainability/Equity/Health), Health and Society 340 (Topic: Sustainability/Equity/Health), 347E. Prerequisite: Upper-division standing.

GRG 343E. Mapping Latin America.

Same as History 363E and Latin American Studies 330 (Topic 4). Discuss the role of maps in the creation of Latin America as a specific sort of place. As such, allows familiarity with a broad overview of Latin American history from Pre-Columbian civilizations to the modern period. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 343E, 356T (Topic: Mapping Latin America), 356T (Topic 12), History 363E, 363K (Topic: Mapping Latin America), 363K (Topic 4), Latin American Studies 330 (Topic: Mapping Latin America), 330 (Topic 4). Prerequisite: Upper-division standing.

GRG 344G. Environmental Law.

Examine environmental law and its impact on all life. Analyze key federal environmental statutes and leading cases in which these statutes have been interpreted by courts. Three lecture hours a week for one semester. Geography 344G and 356 (Topic: Environmental Law) may not both be counted. Prerequisite: Upper-division standing.

GRG 344K. Global Food, Farming, and Hunger.

Examination of contemporary transformations in global agro-food systems, with emphasis on the current paradox of epidemic obesity in some parts of the world and enduring hunger in others. Three lecture hours a week for one semester. Geography 344K and 356T

(Topic: Farming, Food, and Global Hunger) may not both be counted. Prerequisite: Upper-division standing.

GRG 346. The Human Use of the Earth.

The state of the world from an ecological perspective. Case studies are drawn from a wide range of ecological settings and involve both traditional and modern societies. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 348E. Tourism and Place in the Global South.

Same as Asian Studies 330E. Debunk the myth that tourism is inherently desirable by unpacking the mechanisms of violence and inequalities of power embedded in tourism and tourism development. Three lecture hours a week for one semester. Only one of the following may be counted: Asian Studies 330E, 361 (Topic: Tourism/Place Global South), Geography 348E. Prerequisite: Upper-division standing.

GRG 349S. Global Sustainability and Soil.

Same as Liberal Arts Honors 352J. Restricted to Plan I majors in the College of Liberal Arts. Examine soil as a resource from the perspectives of natural and sustainability science, including soil ecology and biodiversity, formation, fertility for ecosystems and farming systems, soil health, distinguishing characteristics in nature, taxonomy, and soil spatial variability around the globe. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 349S, 356 (Topic: Global Sustainability/Soil-Hon), Liberal Arts Honors 350 (Topic: Global Sustainability/Soil), 352J. Offered on the letter-grade basis only. Prerequisite: Upper-division standing, Geography 401C, and a cumulative grade point average of at least 3.25.

GRG 350E. Geoprocessing.

Computer programming and scripting applied to geospatial data. Three lecture hours a week for one semester. Geography 350E and 356T (Topic: Geoprocessing) may not both be counted. Offered on the letter-grade basis only. Prerequisite: Upper-division standing and Geography 460G.

GRG 350K. Geographies of Globalization.

Examines globalization in historical and contemporary contexts, with a focus on race, class and gendered power. Three lecture hours a week for one semester. Geography 350K and 356T (Topic: Introduction to Globalization) may not both be counted.

GRG 356C. Geo-Archaeology and Environmental History.

Long-term ecology as reconstructed from settlement and land-use histories. Empirical case studies in environmental history from the Mediterranean region, the Near East, and Mesoamerica. Applications to degradation, desertification, sustainability, and global change. Three lecture hours a week for one semester. Only one of the following may be counted: Anthropology 382N, Geography 356C, 382K. Prerequisite: Upper-division standing.

GRG 356D. Water Resources in Latin America and the Caribbean.

Same as Latin American Studies 331. Examine the variability of landscapes, climatic regions, and anthropogenic activities found throughout Latin America and the insular Caribbean to explore the complex issues related to water resource accessibility. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 356 (Topic: Water Res: Lat Amer/Caribbean), 356D, Latin American Studies 330 (Topic: Water Res: Lat Amer/Caribbean), 331. Prerequisite: Upper-division standing.

GRG 356T. Topics in Geography.

Three lecture hours a week for one semester. Some topics may require additional field trips. May be repeated for credit when the topics vary. Prerequisite: Varies with the topic.

Topic 1: The Culture of Cities. Same as American Studies 370 (Topic 13) and Urban Studies 320T. Examines the social, geographical, and cultural evolution of the United States from a rural and small-town society to an urban and suburban nation. Subjects may include the segregation of public and private space; the formation of urban subcultures organized by gender, work, race, religion, and sexuality; social and spatial divisions between rich and poor and native-born and immigrant; and the increasing importance of "cultural capital" in reshaping urban politics and in conflicts over revitalization and gentrification. Three lecture hours a week for one semester. Only one of the following may be counted: American Studies 370 (Topic 13), Geography 356T (Topic 1), Urban Studies 320T, 354 (Topic 4). Additional prerequisite: Upper-division standing.

Topic 2: Memory and Place. Same as American Studies 370 (Topic 23). Explores how cultural memory is produced in its various forms, from memorials, public art, and commodities to popular culture, rituals, and museums, and how public remembering is inevitably anchored in specific geographic places. Additional prerequisite: Upper-division standing.

Topic 3: Geographical Information Systems and Remote Sensing for Archaeology and Paleontology. Same as Anthropology 324L (Topic 33). Designed to give students interested in the fields of archaeology, physical anthropology, and paleontology a foundation in the use of geographical information systems (GIS) and the analysis of remotely sensed data from satellites and aerial photographs. Additional prerequisite: Upper-division standing.

Topic 4: Northern Lands and Cultures. Same as European Studies 346 (Topic 9) and Russian, East European, and Eurasian Studies 345 (Topic 6). Develops geographical understanding of the Circumpolar region of the North, an ancient human habitat, home to distinct millennia-old civilizations. Only one of the following may be counted: European Studies 346 (Topic: Northern Lands and Cultures), 346 (Topic 9), Geography 356T (Topic: Northern Lands and Cultures), 356T (Topic 4), Russian, East European, and Eurasian Studies 345 (Topic: Northern Lands and Cultures), 345 (Topic 6). Additional prerequisite: Upper-division standing.

Topic 5: Urban Publics. Same as Urban Studies 324C. The concept of the public in the city and how it has shifted over time along the lines of gender, ethnicity, race, and class. Examines contemporary struggles over defining the urban public and how those struggles are linked to social, cultural, political, and economic forces. Subjects include uses of public space, the public sphere, eminent domain, urban politics, civic engagement, and political participation. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 356T (Topic 5), Urban Studies 324C, 354 (Topic: Urban Publics). Additional prerequisite: Upper-division standing.

Topic 6: The Environmental Change and Management of Large Rivers. An interdisciplinary perspective on the physical processes of large rivers. Subjects include land degradation; deforestation; river engineering; flood processes; sedimentology; floodplains management; ecohydrology; Quaternary fluvial geomorphology; and paleohydrology. Only one of the following may be counted: Geography 356T (Topic: Environmental Change and Management of Large Rivers), 356T (Topic 6), Latin American Studies 330 (Topic: Environmental Change and Management of Large Rivers). Prerequisite: Upper-division standing.

Topic 8: Global Societies. The use of geographical perspectives to make sense of the global society. Subjects include globalization, war, economic crisis, and social movements. Geography 356T (Topic:

Global Societies) and 356T (Topic 8) may not both be counted.

Additional prerequisite: Upper-division standing.

Topic 14: Geography of Religion in Eastern Europe and Russia. Same as Religious Studies 357G and Russian, East European, and Eurasian Studies 345 (Topic 9). A comprehensive overview of major religious culture regions in the former Eastern bloc countries. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 356T (Topic: Geography of Religion in Eastern Europe and Russia), 356T (Topic 14), Religious Studies 357 (Topic: Geography of Religion in Eastern Europe and Russia), 357 (Topic 5), 357G, Russian, East European, and Eurasian Studies 345 (Topic: Geography of Religion in Eastern Europe and Russia), 345 (Topic 9). Additional prerequisite: Upper-division standing.

GRG 357. Medical Geography.

The geographic distribution, expansion, and contraction of the infectious diseases that have the greatest influence in shaping human societies today: malaria, AIDS, and others. Three lecture hours a week for one semester. Prerequisite: Upper-division standing.

GRG 358E. Geography and Religion.

Same as Humanities 350 (Topic 3). Ideas about the relationships among the natural world, myth, and ritual; principal focus on Christianity, Islam, and Judaism and their offshoots and antagonists in the Western world. Geography 358E and Humanities 350 (Topic 3) may not both be counted. Prerequisite: Upper-division standing.

GRG 460G. Environmental Geographic Information Systems.

An introduction to the creation and use of geographic information systems. Three lecture hours and two lab hours a week for one semester. Prerequisite: Upper-division standing.

GRG 462K. Introduction to Remote Sensing of the Environment.

The use of electromagnetic energy to sense objects in the natural environment; interpretation and recognition of patterns detected by sensors. Three lecture hours and one and one-half laboratory hours a week for one semester. Prerequisite: Upper-division standing.

GRG 464K. Advanced Remote Sensing and Pattern Analysis.

Advanced classification techniques for satellite image processing and landscape pattern analysis. Three lecture hours and one and one-half discussion hours a week for one semester. Geography 356 (Topic: Advanced Remote Sensing and Pattern Analysis) and 464K may not both be counted. Prerequisite: Upper-division standing, and Geography 462K or the equivalent or consent of instructor.

GRG 366C. Comparative Ecosystems.

The important ecosystem processes that affect the distributions, characteristics, and management of natural environments at landscape, regional, and continental scales. Ecosystem functions, including nutrient cycling, water balance, and the role of natural disturbances in a wide range of ecosystems, from the tundra to the rain forests and grasslands of the tropics. Three lecture hours a week for one semester. Geography 356T (Topic: Comparative Ecosystems) and 366C may not both be counted. Prerequisite: Upper-division standing and three semester hours of coursework in physical geography or one of the geological or natural sciences.

GRG 366K. Biogeography.

Contemporary patterns of plant and animal distribution, and the environmental and historical processes affecting them. Three lecture hours a week for one semester. Prerequisite: Upper-division standing and

three semester hours of coursework in physical geography or one of the geological or natural sciences.

GRG 367D. Climate Change and Vegetation Response in the Kalahari.

Using the Kalahari as a basis for understanding, explore the ecological dynamics of savanna systems and their interactions with climatic variability over time and space. The focus on monitoring and assessment to inform rangeland management includes vegetation sampling and calculations of carrying capacity. Examine how savanna systems dynamics are comparable across regions, and thus are both globally and UT-locally relevant. The equivalent of three lecture hours a week for one semester. Geography 356T (Topic: Climate Change and Vegetation Response in the Kalahari) and 367D may not both be counted. Offered on the letter-grade basis only. Prerequisite: GPA of at least 2.0.

GRG 367K. Vegetation Ecology.

Plant autecology and synecology. Ecological factors and processes of plant communities. Vegetation geoecology, succession, and dynamics. Three lecture hours a week for one semester. Prerequisite: Upper-division standing and six semester hours of coursework in physical geography or one or more of the geological or natural sciences.

GRG 368C. Spatial Analysis and Geographic Information Systems.

Addresses spatial problem solving by focusing on both the theoretical/conceptual and practical aspects of geographic information systems modeling. Describes geographic information systems techniques and spatial statistics used to quantify and measure spatial patterns. Three lecture hours a week for one semester. Prerequisite: Upper-division standing and Geography 460G (360G).

GRG 368D. Enviro-Cultural Dynamics in Botswana.

Examines the Kalahari case study of the San "First People" and their history of treatment in the Central Kalahari Game Reserve compared to other more recently arriving peoples. Explores how cultural groups are differentially treated and how that treatment and their ties to and uses of the landscape evolves over time. The equivalent of three lecture hours a week for one semester. Geography 356T (Topic: Enviro-Cultural Dynamics in Botswana) and 368D may not both be counted. Offered on the letter-grade basis only. Prerequisite: GPA of at least 2.0.

GRG 369D. GIS Applications in Social and Environmental Science.

A hands-on approach to covering the appropriate use of geographical information systems (GIS) and spatial statistical analysis in different sub-disciplines. Three lecture hours a week for one semester. Geography 356 (Topic: GIS Applications in Social and Environmental Science) and 369D may not both be counted. Offered on the letter-grade basis only. Prerequisite: Geography 412E or 460G.

GRG 470C. Advanced Geographic Information Systems.

Study of methods of spatial analysis, design and implementation of a geographic information system, vector and raster modeling, and advanced applications of geographic information systems. Three lecture hours and one and one-half laboratory hours a week for one semester. Prerequisite: Upper-division standing and Geography 460G (360G).

GRG 370D. Spatial Reasoning with Geographic Information Systems.

Using Geographic Information Systems (GIS) and spatial analysis, examine different types of real-world problems. Read newspaper and journal articles about real issues or problems and explore how they can be addressed and potentially solved. Focus on specific problems and learn about the GIS tools and techniques that are appropriate for each

scenario. Three lecture hours a week for one semester. Geography 356 (Topic: Spatial Reasoning with GIS) and 370D may not both be counted. Offered on the letter-grade basis only. Prerequisite: Geography 460G.

GRG 373F. Field Techniques.

Introduction to the collection and mapping of environmental and cultural data, involving both classroom lectures and outdoor exercises. Three lecture hours a week for one semester. Prerequisite: Upper-division standing, a major in geography, and consent of instructor.

GRG 373K. Field Methods for Landscape Characterization.

The design of research questions and the acquisition of data for the characterization of landscapes. Utilizes geographical and ecological field-based methods. Three lecture hours a week for one semester. Prerequisite: Upper-division standing and Geography 301C or the equivalent.

GRG 374. Frontiers in Geography.

Restricted to geography majors and students seeking a secondary school teaching certificate with geography as the second teaching field. Current concerns and methodology in the field of geography; an introduction to theory and research in geography. The equivalent of three lecture hours a week for one semester, with one field trip to be arranged. Prerequisite: Upper-division standing and consent of the undergraduate adviser.

GRG 476T. Topics in Geography.

Three lecture hours and one and one-half laboratory hours a week for one semester. May be repeated for credit when the topics vary. Prerequisite: Upper-division standing.

GRG 679H. Honors Tutorial Course.

For honors candidates in geography. Individual reading of selected works for one semester, followed in the second semester by the writing of an honors thesis. Regular conferences with the faculty supervisor are also required. Conference course for two semesters. Prerequisite: For 679HA, admission to the Geography Honors Program no later than two semesters before expected graduation; for 679HB, Geography 679HA. A University grade point average of at least 3.00 and a grade point average in geography of at least 3.50 are required for admission to the Geography Honors Program.

GRG 379K. Conference Course.

Supervised individual study of selected problems in geography. Conference course. May be repeated for credit. Prerequisite: Six semester hours of upper-division coursework in one or more of the social, geological, or natural sciences; and consent of instructor.

GRG 379L. Practicum: Internships in Applied Geography.

Research and staff experience working in an appropriate government agency or private business. At least six but no more than nine hours of work a week for one semester. Prerequisite: Completion of at least seventy semester hours of coursework, including twelve semester hours of geography, and consent of the undergraduate adviser.

Graduate Courses

GRG 380. Field Course in Geography.

Collection of data, formulation of meaningful categories of regions, development of hypotheses of cause-and-effect relations through direct contact with the phenomena and processes in the area where a problem is located. Three lecture hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 380C. Myth, Ritual, Place, and Environment.

Impact of local religious lore and practice on cultural landscapes, conservation, and sense of place; cultural and environmental consequences of the spatial expansion of world religions; other themes in the geography of religion, including civil religion and environmental theology. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 380D. Environment and Health in Latin America.

Same as Latin American Studies 388 (Topic 4: Environment and Health in Latin America). Issues related to health, health care, and development in Latin America and the Caribbean, considered with the recognition that health depends on the interactions of social, economic, and political factors as well as on health care services. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 380E. Geomorphology of the Southwest.

Geography of West Texas and New Mexico; late Cenozoic basalt flows, volcanic ashes, sand sheets, alluvium, paleolake deposits, glacial moraines, colluvium, and soils; integration of landforms and landscape ecology. Includes a ten-day field trip. The equivalent of three lecture hours a week for one semester, with additional field hours to be arranged. Prerequisite: Graduate standing and consent of instructor.

GRG 380F. Field Techniques in Sediments and Soils.

Designed to provide experience in field description of sediments and soils in Central Texas; second half of course focuses on field interpretation of geomorphology and landscape evolution using sedimentary deposits and soils. The equivalent of three lecture hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 381. Topics in Seminar in Historical Geography.

Topics include Latin America, Anglo-America, Texas, boundaries, settlement origins and patterns, origins of agriculture. The equivalent of three lecture hours a week for one semester. May be repeated for credit when the topics vary. Prerequisite: Graduate standing in geography or a related social science, and consent of instructor.

GRG 381C. Mapping the Middle East.

Ways in which the Middle East is and has been represented cartographically. Cartographic representations of the region during the fifteenth and sixteenth centuries; the nature and evolution of a distinctive Islamic cartographic tradition; the role and use of maps during the nineteenth and twentieth centuries both in the extension of colonialism and in the creation of modern states; and the contemporary use, applications, and implications of geographic information systems in organizing and representing data spatially. Prerequisite: Consent of instructor.

GRG 381D. Soil Geomorphology.

Examine three aspects of soil geomorphology: soil formation as it relates to earth surface processes, soils and sustainability, and soil ecosystem interactions. Three lecture hours a week for one semester. Geography 381D and 396T (Topic: Soil Geomorphology) may not both be counted. Prerequisite: Graduate standing.

GRG 382K. Geo-Archaeology and Environmental History.

Same as Anthropology 382N. Long-term ecology as reconstructed from settlement and land-use histories. Empirical case studies in environmental history from the Mediterranean region, the Near East, and Mesoamerica. Applications to degradation, desertification, sustainability, and global change. Three lecture hours a week for one semester. Only

one of the following may be counted: Anthropology 382N, Geography 356C, 382K. Prerequisite: Graduate standing.

GRG 383C. Topics in Seminar in Environment and Development.

A third- and fourth-world perspective on the geographic implications of international development; emphasis on local and global environmental effects. Three lecture hours a week for one semester. May be repeated for credit when the topics vary. Prerequisite: Graduate standing in geography or a related social science.

Topic 2: Environment and Development in the Middle East.

GRG 383F. Long-Term Climate Change and History.

Climate and atmospheric science considered with long-term climate and historical and archaeological change over Earth history, focusing on the Quaternary to the future. Three lecture hours a week for one semester. Geography 383F and 396T (Topic: Long-Term Climate Change and History) may not both be counted. Prerequisite: Graduate standing.

GRG 384C. Watershed Systems and Environmental Management.

The effect of landcover change on drainage basin processes, considered from a geomorphological perspective over varying temporal and spatial scales. Topics may include watershed management, stream channel restoration, fluvial geomorphic processes, and Geographic Information Systems applications to drainage basin processes. Three lecture hours a week for one semester, with additional field hours to be arranged. Prerequisite: Graduate standing and consent of instructor.

GRG 385. Topics in Seminar in Regional Geography.

Three lecture hours a week for one semester. May be repeated for credit when the topics vary. Prerequisite: Graduate standing; consent of instructor.

Topic 1: Regional Geography of Latin America. Same as Latin American Studies 388 (Topic 1: Regional Geography of Latin America). Topics include land and life in Central America; culture, environment, and development in Latin America; recent trends in Latin American geography.

Topic 2: Europe. Topics include various aspects of the economic and political geography of individual nations or regions, such as regional differences in Southeast Europe, agricultural developments in European Community countries, trade, viability of individual countries, the changing resources picture in Western and Eastern Europe.

Topic 3: Anglo-America. Topics include agricultural patterns of the United States, comparative regional studies, measurement and delimitation of regions, analysis of population shifts.

Topic 4: Asia. Topics include economic regionalization in Asia, spatial structure of Asian manufacturing, regional discrimination analysis for selected areas and variables in Asia, urban structure in South Asia, developmental activity and spatial change in India.

Topic 5: Regional Geography of the Middle East and North Africa. Same as Middle Eastern Studies 381 (Topic 11: Regional Geography of the Middle East and North Africa). Topics include developmental activity and spatial change in the Middle East, comparative regional studies.

GRG 385C. Quaternary Landscapes.

Changing physical and biotic landscapes on Ice Age earth during the past two million years. Reconstruction of Quaternary geomorphic landscapes based on principles and applications of geochronology and paleoclimatology. Three lecture hours a week for one semester. Geography 335C and 385C may not both be counted. Prerequisite: Graduate standing.

GRG 385H. Wetlands: Earth System Science and History.

Biophysical, historical, and policy/restoration components of wetlands with global and regional case studies. Three lecture hours a week for one semester. Geography 385H and 396T (Topic: Wetlands and Floodplains) may not both be counted. Prerequisite: Graduate standing.

GRG 386C. Topics in Seminar in Quaternary Studies.

Issues and new developments in regional and global aspects of Quaternary climates, biota, prehistory, and landscape evolution. Three lecture hours a week for one semester. May be repeated for credit when the topics vary. Prerequisite: Graduate standing.

GRG 387C. Political Ecology.

An introduction to the history of development theory, economic globalization, studies in the history of science, issues of social justice, and critical studies of environmental history. Three lecture hours a week for one semester. Geography 387C and 396T (Topic: Political Ecology) may not both be counted. Prerequisite: Graduate standing.

GRG 387D. Globalization, Conflict, and Resistance.

Focuses on a theoretical and empirical understanding of the economic, cultural, political, and policy dimensions of globalization; study of the impact of globalization on people and places; understanding of class and identity conflicts using case studies from Latin America, the United States, Europe, Africa, the Middle East, and Asia; and exploration of theories of social movement with examples from the global North and South. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 387K. Geoarchaeology of Mesoamerica.

Examine three areas of Mesoamerican geoarchaeology: regional environments, the lines of scientific evidence for current and past environments, and human-environmental interactions from the Pleistocene to the present. Three lecture hours a week for one semester. Geography 387K and 396T (Topic: Geoarchaeology of Mesoamerica) may not both be counted. Prerequisite: Graduate standing.

GRG 388. Seminar in Resources and Conservation.

Development of the conservation movement, problems of resource misuse, conservation practices, state and national conservation policies, nature and distribution of natural resources. Three lecture hours a week for one semester. Prerequisite: Graduate standing in geography or a related social science, and consent of instructor.

GRG 388C. Indigenous Maps, Architecture, and Enculturation of Colonial Mexico.

Same as Latin American Studies 388 (Topic 2: Indigenous Maps, Architecture, and Enculturation of Colonial Mexico). The encounter of Spanish and indigenous cultures and ecologies; regional diversity of agricultural, urban, and economic development from 1521 to 1810; ethnic transformation and new socioeconomic configurations. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 388R. Forest Hydrology.

Traces the history of forest hydrology as a science that describes the natural complexities of water movement through forested headwater landscapes and the changes imposed to these processes by disturbances associated with extreme weather events, deforestation, timber harvesting, wildfires, and climate change. Three lecture hours a week for one semester. Geography 388R and 396T (Topic: Forest Hydrology) may not both be counted. Prerequisite: Graduate standing.

GRG 389P. Hydrogeomorphology.

Hydrologic and geomorphologic applications to practical problems in physical geography, geology, civil engineering, ecology, and

environmental sciences. Three lecture hours a week for one semester. Geography 389P and 396T (Topic: Hydro-Geomorphology) may not both be counted. Prerequisite: Graduate standing.

GRG 390. Cultural and Humanistic Geography.

Analysis of human-environment interactions by employing the concepts of place, home, and dwelling. Discussion of humanistic and postmodern geographical research. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 390C. Landscape, Meaning, and Society.

The creation, transformation, and meaning of landscapes within different societies through time. Iconographical analysis of the built environment; impress of belief and ideology on landscape; analysis of nationalistic and authoritarian landscapes; problems of defining and mapping ethnicity; civilizational process and behavior; institutional vandalism, place annihilation, and the destruction and effacement of landscape symbols; cultural and geographical foundations and unintended consequences of global economic integration. Three lecture hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 390K. Issues in Geography.

Examines the history, philosophy, and ontology of geography, including its various subfields. Three lecture hours a week for one semester. Required of all first-year graduate students in geography. Prerequisite: Graduate standing in geography, or graduate standing and consent of the graduate adviser.

GRG 390L. Research in Geography.

Builds on topics explored in Geography 390K by focusing on epistemology and research in the field of geography. Students develop plans for research and write a research proposal. Three lecture hours a week for one semester. Required of all first-year graduate students in geography. Prerequisite: Graduate standing and Geography 390K.

GRG 390S. Environment, Development, and Food Production.

Assessment of various types of nonmechanized agriculture with regard to environmental factors and management techniques. Three lecture hours a week for one semester. Geography 339K and 390S may not both be counted. Prerequisite: Graduate standing and consent of instructor.

GRG 391C. Dynamics of Earth Systems.

An overview of climate, vegetation, soil, and landform processes. Principles and methodology of physical geography. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 391M. Multivariate Techniques in Spatial Analysis.

The application of multivariate data analytic techniques including regression, factor, canonical, and discriminatory analysis of spatial problems. Three lecture hours a week for one semester. Prerequisite: Graduate standing, and Geography 360L or a basic course in inferential statistics.

GRG 392C. The Anthropocene in the Longue Duree.

Explore the "Anthropocene" (early to future) from the perspectives of multiple disciplines including geography, anthropology, archaeology, geology, and ecology. Discuss its drivers, its historical roots, and its chronologies. Three lecture hours a week for one semester. Geography 392C and 396T (Topic: Anthropocene In The Longue Dur) may not both be counted. Prerequisite: Graduate standing and consent of instructor.

GRG 192D. Grant Writing in Geography.

Designed to train students to write competitive and successful applications for extramural grants and fellowships. One lecture hour a week for one semester. Prerequisite: Graduate standing.

GRG 392M. Seminar in Biodiversity Conservation.

Examines issues that involve the conservation and sustainable use of plants, animals, and ecosystems. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 393C. Seminar in Digital Landscapes.

Explores the theoretical and applied issues associated with the acquisition, analysis, simulation, and visualization of digital geographic information, with an emphasis on current trends in landscape characterization, landscape ecology, biodiversity, global change, environmental remote sensing, and socio-ecological systems. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 393D. Geographical Information Systems and Ecological Modeling.

Covers the steps involved in conceptualizing and formulating predictive models in a raster geographical information systems environment. Although many of the topics covered are fairly generic and can be applied to any application area in which raster data are used, species distribution models will be used as the example application area. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 493K. Research in Remote Sensing of the Environment.

Imagery generated by remote sensors applied to research and problem solving in the physical and cultural environment. Three lecture hours and two laboratory hours a week for one semester. Prerequisite: Graduate standing.

GRG 493M. Advanced Remote Sensing and Quantitative Landscape Ecology.

Advanced digital image processing of optical satellite imagery for landscape composition and pattern analysis. Three lecture hours and one and one-half discussion hours a week for one semester. Prerequisite: Graduate standing, and Geography 493K or the equivalent or consent of instructor.

GRG 394. Seminar in Urban Analysis.

Research seminar in urban issues: demographic, environmental, and transportation modeling; metropolitan finance; and urban social pathologies. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 394F. Feminist Geographies.

Uses a feminist geographic lens to interrogate a range of historical and contemporary geopolitical and geoeconomic issues including (re)productive labor struggles, migration, development, globalization, colonialism, nationalism, militarization and transnational resistance movements. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 394F, 396T (Topic: Feminist Geographies), Women and Gender Studies 393 (Topic: Feminist Geographies). Prerequisite: Graduate Standing.

GRG 394K. Geographic Information Systems.

An introduction to the design and use of geographic information systems and to computer-based tools used to store, manage, analyze, and display spatially referenced data. Three lecture hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 394L. Advanced Applications of Information Technology.

Advanced issues in computer cartography, geographic information systems, three-dimensional environmental reconstruction and rendering, terrain modeling, animation of environmental processes, and hypertext and multimedia authoring. Interdisciplinary subjects, such as the application of geographic information systems to archaeological research, historical demography, and habitat mapping and analysis. Three lecture hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 395. Cultural Adaptation and Change.

Same as Anthropology 395K. A graduate-level introduction to cultural behavior, adaptation, evolution and transformation, with emphasis on demography, diffusion, migration, ethnicity, and institutions. Three lecture hours a week for one semester. Prerequisite: Graduate standing in anthropology, geography, or a related field, and consent of instructor.

GRG 395D. Latin American Cultures, Environment, and Development.

Same as Latin American Studies 388 (Topic 3: Latin American Cultures, Environment, and Development). Exploration through Latin American examples of issues of cultural identity and territory, adaptive strategies, environmental impact, conservation, cultural survival, parks and people, and sustainable development. Three lecture hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 395K. Getting and Staying Funded.

Written, oral, and multi-media skills for improved success in academic and non-academic professional arenas including, but not limited to, grant and thesis proposal writing, CV and job application writing, audience-targeted formal and informal oral presentations, multimedia production (e.g., poster, video), and career timeline planning. Three lecture hours a week for one semester. Only one of the following may be counted: Geography 395K, 396T (Topic: Advanced Proposal Writing Bootcamp), 396T (Topic: Strategic Communication/Advanced Proposal Writing). Prerequisite: Graduate Standing.

GRG 396. Techniques in Pollen Analysis.

Field sampling, laboratory processing, microscopy, pollen grain morphology, pollen counting, and data-handling techniques. Two lecture hours and four laboratory hours a week for one semester. Prerequisite: Graduate standing and consent of instructor.

GRG 396C. Seminar in Current Geographic Research.

Review and discussion of recent research projects across the field of geography; includes analysis of theories and methodologies, and various methods for presenting results. Three lecture hours a week for one semester. Offered on the credit/no credit basis only. Prerequisite: Graduate standing in geography or a related field, and consent of instructor.

GRG 396K. Quaternary Palynology.

Methods, principles, and applications of pollen analysis to vegetational, paleoenvironmental, and ethnobotanical reconstructions. Three lecture hours a week for one semester. Prerequisite: Graduate standing.

GRG 396T. Topics in Geography.

Three lecture hours a week for one semester. Some topics may require additional field trips. May be repeated for credit when the topics vary. Prerequisite: Graduate standing; additional prerequisites vary with the topic.

GRG 197, 297, 397. Conference Course in Geography.

Supervised study and research. For every hour of credit earned, the equivalent of one lecture hour a week for one semester. May be repeated for credit. Prerequisite: Graduate standing and consent of supervising professor.

GRG 698. Thesis.

The equivalent of three lecture hours a week for two semesters. Offered on the credit/no credit basis only. Prerequisite: For 698A, graduate standing in geography and consent of the graduate adviser; for 698B, Geography 698A.

GRG 398R. Master's Report.

Preparation of a report to fulfill the requirement for the master's degree under the report option. The equivalent of three lecture hours a week for one semester. Offered on the credit/no credit basis only. Prerequisite: Graduate standing in geography and consent of the graduate adviser.

GRG 398T. Supervised Teaching in Geography.

Teaching under the close supervision of the course instructor; group meetings with the instructor, individual consultations, and reports throughout the teaching period. Three lecture hours a week for one semester. Prerequisite: Graduate standing and appointment as a teaching assistant.

GRG 399W, 699W, 999W. Dissertation.

May be repeated for credit. Offered on the credit/no credit basis only. Prerequisite: Admission to candidacy for the doctoral degree.

Professional Courses