GEG 198. Geographic Information System for Engineers. 1 Credit Hour.
The fundamentals of Geographic Information Systems (GIS). A GIS is a set of hardware and software tools that allow people to work with data that are tied to a particular location. In this course students will learn how to import, analyze and display answers to spatial research questions using GIS software. By the end of the semester students should have a solid understanding of the various applications of Geographic Information Systems in numerous spheres of everyday life. No prior experience with GIS software is required for this course. This course is for College of Engineering students only.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 199. Geographic Information Systems for Engineers. 1 Credit Hour.
The fundamentals of Geographic Information Systems (GIS). A GIS is a set of hardware and software tools that allow people to work with data that are tied to a particular location. In this course students will learn how to import, analyze and display answers to spatial research questions using GIS software. By the end of the semester students should have a solid understanding of the various applications of Geographic Information Systems in numerous spheres of everyday life. No prior experience with GIS software is required for this course.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 281. Economic Geography. 3 Credit Hours.
Explores processes driving spatial patterns of economic activity at the global, national, regional, and local scales. Topic areas include economic globalization, spatial distribution of industrial sectors, multinational corporations, international trade, regional economic development, and illegal economic activities. Examines the development of the global marketplace in both the developed and the developing world.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 211. Environmental Geography and Planetary Health. 3 Credit Hours.
Designed to encourage students to think deeply, critically, and coherently about the interaction between human societies and nature from a geographical perspective. Explores the societal dependence on natural ecosystems. Assess the magnitude and impacts of the environmental changes caused by human activities in the biosphere and evaluates the hypothesis that the earth has moved into a new geologic epoch. Explores the concept of sustainable development and how countries are implementing it.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

GEG 241. Health and Medical Geography. 3 Credit Hours.
Integrates public health and medicine with human and environmental geography using three approaches: ecological (the interaction of disease and our natural/built environments), social (the behavioral effects of culture, poverty, and politics), and spatial (using geospatial technology to better understand and improve health services and outcomes).
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 266. Metropolitan Miami. 3 Credit Hours.
This course provides interdisciplinary perspectives on the urbanization of South Florida and on Miami’s urban milieu. The course uses the case of Metropolitan Miami to introduce and illustrate a range of basic concepts in urban studies.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 285. Spatial Data Analysis I. 3 Credit Hours.
The use of basic methods or quantitative analysis for spatial data, including basic descriptive and inferential statistics and special techniques for spatial data.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 286. Geographic Research Methods. 3 Credit Hours.
The fundamentals of social science research, such as research design, hypothesis formulation, and field data collection, with particular emphasis on quantitative and qualitative geographic analytical methods.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
GEG 310. Geographic Information Systems I. 3 Credit Hours.
The fundamentals of Geographic Information Systems (GIS). GIS is a set of hardware and software tools that allow people to work with data that are tied to a particular location. In this course students will learn how to import, analyze and display answers to spatial research questions using GIS software. By the end of the semester students should have a solid understanding of the various applications of Geographic Information Systems in numerous spheres of everyday life. No prior experience with GIS software is required for this course. CIVIC designation: This section of the course is taught with the principles of civic engagement and service learning in mind. To satisfy these principles, students will be paired with a community organization in need of mapping, and will complete their final project in partnership with the community organization. For more information on civic engagement and academic service earning please visit http://civic.miami.edu/.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

GEG 315. Digital Cartography. 3 Credit Hours.
An introduction to cartographic methods, interpretation and history. Students learn basic principles of visual representation, how to map qualitative and quantitative data, and how to prepare maps for publication and the web.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 321. Remote Sensing of the Environment. 3 Credit Hours.
Theory and techniques of environmental remote sensing and imagery interpretation for earth resources monitoring and management.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

GEG 331. Sustainable Development. 3 Credit Hours.
Explores the emerging field of sustainable production-consumption systems with special emphasis on the agriculture, extractive, and infrastructure sectors. A geographic perspective is used to evaluate the environmental impacts of these sectors. Reviews the mechanisms that governments and the private sector are establishing to make these economic sectors more sustainable.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 332. Climatology and Extreme Weather. 3 Credit Hours.
Covers introductory information about Earth's atmosphere, weather development, and extreme weather events. Introduces basic concepts of the science of weather and climate, and current scientific developments in areas such as extreme weather forecasting and global climate change.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 334. Biogeography and Conservation. 3 Credit Hours.
Explores the modern science of biogeography and its implications for the design of spatial strategies to conserve biodiversity and ecosystem services. Examines the history of biogeography and its geographical and ecological foundations. Discusses the fundamental biogeographical processes and uses them to investigate the evolution of biotas and explain the current biogeographic patterns. Explores the emerging field of conservation biogeography and its applications.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 335. Sustainable Food Systems. 3 Credit Hours.
A sustainable food system sustains environmental health and local economies, and is socially just. We will explore the intricacies of global geographies of major food systems and how these systems have come to be. We will identify where major food types are produced, why and where the major demand centers are. Further, we will seek answers to fundamental food-related questions, including; in an age of plenty, why do people still starve, and what can be done about it? How do we explain malnutrition in some parts of the world and obesity in others? Can there really be such a thing as a "sustainable global food systems"? Finally, we will examine what the future implication for food is through exploration1 and evaluation of a range of visions for a safe, sustainable food system.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 336. Hazards and Disasters: The Nature-Society Interface. 3 Credit Hours.
Explores how human-environment interactions determine the distribution, causes and consequences of natural hazards and disasters.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 341. Population, Health, and Environment. 3 Credit Hours.
Global human population dynamics and implications for environmental sustainability; topics include population growth and structure, mortality and fertility patterns, migration, urbanization, aging, and household composition.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 343. Population, Sustainability, and the Media. 3 Credit Hours.
Explores opposing views of population growth and environmental sustainability through the media and cinema: contrasts "Doomsters" who believe population growth and resource consumption threaten human survival and pro-growth "Boomsters" who believe human ingenuity and technology will continue to allow humankind to prosper.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 345. Drinking Water: Past, Present, and Future. 3 Credit Hours.
Traces the past, present, and future of human drinking water supplies through a social science lens. Examines drinking water as a physical, social, economic, and political resource, and how the integration of these views affects the management of global drinking water supplies.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
GEG 346. Immigrant and Refugee Health. 3 Credit Hours.
A theoretical background essential for understanding the complex interaction of migration and health. Students will gain a basic understanding of the theories surrounding the movement of people within and across political boundaries. Emphasis will be placed on the health issues experienced by displaced populations including refugees, migrants, and internally displaced persons. We will explore some of the difficulties that receiving communities face in addressing the health needs of migrants, the roles of actors involved in working with displaced populations and how emigration of a large segment of the population, either abruptly or over time, affects sending communities as well. Much of the class will consist of guest speakers and case studies presented by different healthcare professionals working with migrant communities, with examples of the problems faced and solutions achieved in addressing issues of immigrant and refugee health drawn for both national and international experience.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

GEG 348. Climate Change and Public Health. 3 Credit Hours.
The mechanisms by which climate change adversely affects human health, and the policy options for mitigating our exposure.
Components: SEM.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 351. Geopolitics and Peacebuilding. 3 Credit Hours.
Explores the political and legal responses, both national and international, to violations of Human Rights associated with conflicts and totalitarian regimes around the world, with emphasis on the peace building process in diverse geographical locations.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 352. Crime and the City. 3 Credit Hours.
Explores why there is so much violent crime in certain cities of the Americas and why there are such marked spatial differences between, and within, these cities. Contrasts and discusses specific issues (and myths) of crime, punishment, and policing in the Americas using a variety of academic and institutional research on violent crime.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 353. United States National Security. 3 Credit Hours.
Examines a broad spectrum of such challenges to US national security, simulating the role of policy makers and strategists for the Office of the President.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 354. Global Human Rights. 3 Credit Hours.
Equips students with a broad perspective to think critically about the global issues surrounding the foundations of Human Rights together with questions about its universality, reach, and enforceability.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 355. Global Political Economy. 3 Credit Hours.
Explores the relationship between the global economy and politics, as governments seek both to shape it and to respond effectively to the constraints and opportunities it provides.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 356. Latin American Political Economy. 3 Credit Hours.
Examines Latin America's economic development, analyzing different developmental strategies, resource endowment, institutional framework, and other related variables.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 362. World Urban Geography. 3 Credit Hours.
An introduction to the principles and methods that apply to the geographic study of cities and urbanization.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 366. Cities in Time and Space. 3 Credit Hours.
Interdisciplinary perspectives on the city, urbanity, and urbanization through a series of wide-ranging historical-geographical contexts. Field excursions are incorporated into the course.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 381. Geography and Development in Africa. 3 Credit Hours.
A survey of the geography of Africa south of the Sahara, with particular emphasis on development and the role of African states in the international system.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 382. Political Geography of the Middle East. 3 Credit Hours.
Geography of the Middle East with emphasis on current political topics.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 383. Geography and Development in South America. 3 Credit Hours.
An introduction to the geography of South America. Explores the interface between societies and nature in this diverse and complex world region. Covers the major challenges that the countries of the continent are facing to improve their socio-economic indicators as well as protect their unique natural ecosystems.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 384. Geography of South Florida. 3 Credit Hours.
Human and physical geography of South Florida.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
GEG 385. Jewish Geography. 3 Credit Hours.
Facts of Jewish history, geography, and demography both in the world and the United States. Basic geographic concepts that help us to understand the Jewish world and provide a basis for understanding the various ways that Jewish communities have adapted to different geographic circumstances.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 390. Topics in Geography. 3 Credit Hours.
Content and prerequisites announced when offered. Course may be repeated for credit if content varies.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 398. Independent Research. 6.00 Credit Hours.
Independent research conducted one on one with a faculty member.
Components: SEM.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

GEG 399. Independent Study. 6.00 Credit Hours.
Independent study.
Components: SEM.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

GEG 402. Geographic Thought and Analysis. 3 Credit Hours.
An introduction to the history of geographic thought and geographic analysis, and to some important sub-disciplines of Geography. At the end of the semester, students will have a better understanding of the history of Geography, of its place in the academy, and important theoretical and methodological debates and themes within the discipline. Our purpose in this seminar is to create a dynamic and focused intellectual environment in which learning is a collective process. To achieve that we will analyze, critique, question and debate the weekly readings. There will be little formal lecturing on my part. Instead, class time will be spent in open discussion and hands-on projects completed individually or in teams. Throughout the semester, we will also host guest speakers, who will give you insights into their scholarship and give you further exposure to the discipline of Geography. Be ready to read and write a lot, and come to class prepared to discuss!
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

GEG 405. Spatial Data Analysis II. 3 Credit Hours.
Social and environmental science applications of spatial statistical analysis illustrated with data and numerical (simulation experiments) examples employing interactive software. This course’s focus is on spatial autocorrelation.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 406. Survey Research Methods. 3 Credit Hours.
The use of survey research including the choice of a survey mechanism, sampling, questionnaire design, survey logistics, survey analysis, and reporting of results.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 410. Geographic Information Systems II. 3 Credit Hours.
An introduction to spatial analysis, which consists of techniques for analyzing patterns and interrelationships between spatial data. Topics include vector polygon editing and topology, integration of raster and vector data, surface analysis and 3D analysis, suitability mapping, spatial modeling, and multi-criteria evaluations.
Prerequisite: GEG 310.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

GEG 412. GIS for Health and Environment. 3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 414. Crime Mapping and Analysis. 3 Credit Hours.
Provides a basic understanding of the spatial analysis of issues related to criminal justice and crime mapping using state-of-the-art GIS software.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 415. Web GIS. 3 Credit Hours.
Map serving technologies and internet map design, focusing on the programming concepts needed to construct and implement high-quality web mapping applications. Lab exercises will make use of both the commonly used open source GIS and related programming tools for customizing web-based mapping applications, as well as the leading proprietary web mapping capabilities provided in ESRI’s ArcGIS Server. Students build their own on-line interactive, customizable maps and will learn the basics of client/server architecture and processing, JavaScript programming, and XML/HTML basics.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 421. GIS and Environmental Modeling. 3 Credit Hours.
Space-time modeling in a GIS environment with emphasis on raster-based models of land cover change, urban expansion, species distribution, wildfire propagation, and other environmental issues.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 435. Geography of Wine. 3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 501. Capstone Research Seminar. 3 Credit Hours.
Project-based fundamentals of social science research; emphasizes research conceptualization and design, application of methods, data management, scientific writing, multi-modal presentation of findings, and professional development skills.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
GEG 505. Seminar in Methods of Analysis. 3 Credit Hours.
The use of advanced quantitative, qualitative, and mixed methods in
the solution of geographic research problems.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 506. Field Studies in Geography. 3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 507. Seminar in Field Methods. 3 Credit Hours.
With a focus on geospatial applications, this methods course introduces
students to field research addressing complex socio-environmental
issues. The course includes exercises with GPS data collection; geo-
tagged photography; ground truthing; spatial survey design; and
distributed GIS. Various research areas and cognate field methods
including environmental demography, community surveying, cultural
mapping, and multi-sited ethnography.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 519. Immigration to the United States. 3 Credit Hours.
A description and analysis of current immigration patterns in the United
States.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 530. Seminar in Sustainability. 3 Credit Hours.
Examines the relations between human society and material nature
from within a broad theoretical perspective, relating questions of
science, culture, and technology to the politics and economics of natural
resources, focusing particularly on water, food, and petroleum.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 532. Seminar in Biogeography and Conservation. 3 Credit Hours.
Explores the human dimensions of global environmental change using an
interdisciplinary approach. The course is reading and writing intensive.
Special attention is given to the central role that land-use/cover change
plays in the larger realm of global environmental change.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 560. Introductory Quantitative Methods for Geographical Analysis..
3 Credit Hours.
Basic quantitative methods for geographic analysis.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 590. Advanced Topics in Geography. 1-6 Credit Hours.
Content and prerequisites vary by semester.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 597. Internship in Geography. 6.00 Credit Hours.
Components: FLD.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

GEG 598. Advanced Independent Research. 6.00 Credit Hours.
Independent research conducted one on one with a faculty member.
Components: SEM.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

GEG 599. Advanced Independent Study. 6.00 Credit Hours.
Independent study.
Components: SEM.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

GEG 602. Geographic Thought and Analysis. 3 Credit Hours.
Seminar for Graduate and senior undergraduate students about
topic thought and geographical traditions.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 603. Research Design in Geography. 3 Credit Hours.
Designing and proposing geographic research projects based upon a
critical reading of the geographical literature. Students will prepare a
master’s thesis (master’s students) or dissertation (doctoral students)
project proposal.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 610. Survey Research Methods. 3 Credit Hours.
The use of survey research including the choice of a survey mechanism,
sampling, questionnaire design, survey logistics, survey analysis, and
reporting of results.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 613. Advanced Cartography. 3 Credit Hours.
Cartographic research techniques, cognitive mapping, distortion,
transformations and cartograms. Prerequisite: GEG 280 or equivalent.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 619. Immigration to the United States. 3 Credit Hours.
A description and analysis of current immigration patterns in the United
States.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
GEG 622. Urbanization in the Developing World. 3 Credit Hours.
Patterns and processes in large cities in the developing world are examined.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

GEG 623. Seminar in Urban Management. 3 Credit Hours.
Identification of and responses to urban problems in large cities in European and Latin American metropolitan areas. Emphasis is on demographic, cultural/ethnic, service-provision, environmental, transportation, and land-use problems. Approach is via case studies, theory applications, and planning practicalities.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

GEG 625. Advanced Independent Study in Geography I. 1-6 Credit Hours.
Advanced independent study for Two-Paper Option for first paper.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

GEG 632. Seminar in Environmental Geography and Planetary Health. 3 Credit Hours.
Advanced topics in Environmental Geography from a systems approach.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 635. Internship in Geography. 1-4 Credit Hours.
Students are assigned to work for a local public or private agency.
Components: THI.
Grading: SUS.
Typically Offered: Fall & Spring.

GEG 637. Development Studies. 3 Credit Hours.
Advanced seminar on issues in contemporary development studies.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 643. Population, Sustainability and the Media. 3 Credit Hours.
Explores opposing views of population growth and environmental sustainability through the media and cinema: contrasts "Doomsters" who believe population growth and resource consumption threaten human survival, and pro-growth "Boomsters" who believe human ingenuity and technology will continue to allow humankind to prosper.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 645. Advanced Independent Study in Geography II. 1-6 Credit Hours.
Advanced independent study for Two-Paper Option for second paper.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

GEG 648. Climate Change and Public Health. 3 Credit Hours.
The mechanisms by which climate change adversely affects human health and the policy options for mitigating our exposure.
Components: SEM.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 652. Seminar on the Geography of South Florida. 3 Credit Hours.
Human and physical geography of South Florida.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 655. Field Methods and Geospatial Analysis. 3 Credit Hours.
With a focus on geospatial applications, this methods course introduces students to field research addressing complex socio-environmental issues. The course includes exercises with GPS data collection; geo-tagged photography; ground truthing; spatial survey design; and distributed GIS. Various research areas and cognate field methods including environmental demography, community surveying, cultural mapping, and multi-sited ethnography.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 656. Interdisciplinary Issues in Latin American and Caribbean Studies. 3 Credit Hours.
Political, economic, social, and cultural issues of Latin American and Caribbean area Studies.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 658. Seminar in Comparative Politics I. 3 Credit Hours.
Comparative political analysis within and across nations. Debates on state formation, democracy and development, democratization, and the role of ideas, interests, and institutions.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 661. Urban Geography I. 3 Credit Hours.
An introduction to the essential elements about the growth and development of cities. Review of the challenges of urbanization and urban sustainability in the contemporary period.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 663. Urban Geography II. 3 Credit Hours.
Analysis of the spatial structure of urban centers, the development of and interaction between functional zones, and the movement of goods and people in urban areas.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 666. Spatial Data Analysis I. 3 Credit Hours.
The use of basic methods or quantitative analysis for spatial data, including basic descriptive and inferential statistics and special techniques for spatial data.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 681. Spatial Data Analysis II. 3 Credit Hours.
Social and environmental science applications of spatial statistical analysis illustrated with data and numerical (simulation experiments) examples employing interactive software. This course’s focus is on spatial auto correlation.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
GEG 685. Digital Cartography. 3 Credit Hours.
Introduction to cartographic methods, interpretation, and history. Basic principles of visual representation, how to map qualitative and quantitative data, and how to prepare maps for publication and the web.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 689. Geographic Information Systems I. 3 Credit Hours.
An introduction to fundamental concepts in Geographic Information Systems (GIS) and related geographic technologies. Students are exposed to leading GIS software tools used in the industry.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 691. Geographic Information Systems II. 3 Credit Hours.
An introduction to spatial analysis, which consists of techniques for analyzing patterns of and interrelationships between spatial data. Topics include vector polygon editing and topology, integration of raster and vector data, surface analysis and 3D analysis, suitability mapping, spatial modeling and multi-criteria evaluations.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 692. Remote Sensing of the Environment. 3 Credit Hours.
Theory and techniques of environmental remote sensing and imagery interpretation for earth resources monitoring and management.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 693. Geographic Information Systems III. 3 Credit Hours.
Map serving technologies and internet map design, focusing on the programming concepts needed to construct and implement high-quality web mapping applications.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 694. Web GIS. 3 Credit Hours.
Theory and techniques of environmental remote sensing and imagery interpretation for earth resources monitoring and management.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 695. Seminar in Comparative Politics II. 3 Credit Hours.
Theoretical approaches and methodological debates in Comparative Politics.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

GEG 698. Master's Thesis. 1-6 Credit Hours.
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

Components: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

GEG 699. Research in Residence. 1 Credit Hour.
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in GEG 710 (usually six credits). Credit not granted. May be regarded as full time residence.

Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.