

Geography and Urban Studies (GUS)

Course information contained within the Bulletin is accurate at the time of publication in June 2025 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

GUS 0821. Digital Mapping: From Mercator to Mashups. 4 Credit Hours.

Almost all of us interact with digital maps regularly for finding directions and the locations of services, like the nearest coffee shop. Yet for most, the inner workings of digital maps remain a mystery. This course provides an in-depth exploration of how digital maps work - what technologies support location tracking, where do the mapped data come from, and how digital maps are used to analyze geographic problems in urban and environmental planning and policy, health, and business. Along the way, you will develop quantitative literacy by learning how to acquire spatial data, make digital maps, and critically evaluate mapping applications. NOTE: This course fulfills the Quantitative Literacy (GQ) requirement for students under GenEd and a Quantitative Reasoning (QA or QB) requirement for students under Core. Students cannot receive credit for this course if they have successfully completed CTRP 0821, CRP 0821 or GUS 0921.

Course Attributes: GQ, SI

Repeatability: This course may not be repeated for additional credits.

GUS 0831. Global Cities. 3 Credit Hours.

As globalization accelerates, the world becomes smaller and is transformed to an extended urban network. Even though there are places and people off the global grid in both rich and poor countries, we live in a single, interdependent urban world. This course seeks to understand this urban world. We ask questions like: How do changes in the global economy affect the lives of people from Cairo to Chicago? As 50 million people per year move into cities around the world how do those cities change? How will the massive rural to urban migration in China and India affect resources and the global environment? What is life like in cities for the majority of the world's poor? What types of plans and policies could improve cities in this century? Are wages in Philadelphia being influenced by what happens in Beijing and Bangalore? The answers will come from a wide range of perspectives, from geographers, urban planners, sociologists, and economists. NOTE: This course fulfills the World Society (GG) requirement for students under GenEd and International Studies (IS) for students under Core.

Course Attributes: GG, SI

Repeatability: This course may not be repeated for additional credits.

GUS 0842. Sustainable Environments. 3 Credit Hours.

Humans are at a critical juncture in their relationship with the environment. Many of the global changes occurring in the atmosphere, climate, and oceans can be attributed to human activity. While the standard of living has increased for many people across the globe, the technological advancements that have made this possible endanger future generations because of their environmental impacts. Environmental toxins and air pollution are increasing, and fossil fuels and forests are being depleted at unsustainable rates. Now more than ever, the viability of human life depends on the scientific understanding of global environmental change, and on developing science-based policies to both protect the environment and promote human well-being in a just and sustainable manner. Course mission: enhance your capability to be environmentally informed consumers and citizens based on a sound understanding of the ecological, technological, economic, political, and ethical dimensions of environmental sustainability. NOTE: This course fulfills a Science & Technology (GS) requirement for students under GenEd and Science & Technology Second Level (SB) for students under Core. Students cannot receive credit for this course if they have successfully completed EES/Geology 0842, ENST 0842/0942, or GUS 0942.

Course Attributes: GS, SE, SF, SP, SS

Repeatability: This course may not be repeated for additional credits.

GUS 0861. Urban Dynamics: Global, Regional, and Local Connections. 3 Credit Hours.

Cities are a study in contrast - both a source of opportunity and a place where great wealth and poverty coincide. U.S. cities face enormous challenges as globalization has sparked a new era of urban innovation, yet has also intensified inequality and spurred new technologies of social control. This course asks: How have U.S. cities changed over the last century? How is globalization impacting the lives and opportunities of city dwellers? How do gender, age, race/ethnicity, class, and citizenship affect urban residents' experiences? How do urban policies and social movements advance or impede social justice across groups and places? Course topics include the social, economic, and political forces restructuring cities, inequality and diversity in the city, cities in the global economy, and the future of cities. Students cannot receive credit for this course if they have successfully completed CTRP 0861, CRP 0861 or SOC 0861.

Course Attributes: GU, SI

Repeatability: This course may not be repeated for additional credits.

GUS 0862. Development & Globalization. 3 Credit Hours.

Use historical and case study methods to study the differences between rich and poor nations and the varied strategies available for development in a globalizing world. Examine the challenges facing developing countries in historical and contemporary context and analyze the main social, cultural, and political factors that interact with the dynamic forces of the world economy. These include imperialism/colonialism, state formation, labor migration, demographic trends, gender issues in development, religious movements and nationalism, the challenges to national sovereignty, waves of democratization, culture and mass media, struggles for human rights, environmental sustainability, the advantages and disadvantages of globalization, and movements of resistance. NOTE: This course fulfills the World Society (GG) requirement for students under GenEd and International Studies (IS) for students under Core. Students cannot receive credit for this course if they have successfully completed any of the following: History 0862, POLS 0862/0962, or SOC 0862/0962.

Course Attributes: GG, SI

Repeatability: This course may not be repeated for additional credits.

GUS 0867. World Regions and Cultures: Diversity & Interconnections. 3 Credit Hours.

What is globalization? Are we now all citizens of a global capitalist economic and truly international political order? Or do we still live mostly under the economic constraints and governmental policies of the nation states of which we are citizens? How do different regions of the world experience and negotiate cultural continuity and change in different ways due to their distinctive historical and political-economic experiences? Focusing on different regions of the world, we will investigate how cultures and societies are connected to each other, how they relate to each other, and how they compare or contrast with each other. In particular, we will examine topics such as economic development, urbanization, immigration, labor, neoliberalism, citizenship, religion, gender, democracy and human rights. NOTE: This course fulfills the World Society (GG) requirement for students under GenEd and International Studies (IS) for students under Core. Duplicate Credit Warning: Students may take only one of the following courses for credit; all other instances will be deducted from their credit totals: Anthropology 0867, 1061, C061 or Geography and Urban Studies 0867.

Course Attributes: GG, SF

Repeatability: This course may not be repeated for additional credits.

GUS 0921. Honors Digital Mapping: From Mercator to Mashups. 4 Credit Hours.

Almost all of us interact with digital maps regularly for finding directions and the locations of services, like the nearest coffee shop. Yet for most, the inner workings of digital maps remain a mystery. This course provides an in-depth exploration of how digital maps work - what technologies support location tracking, where do the mapped data come from, and how digital maps are used to analyze geographic problems in urban and environmental planning and policy, health, and business. Along the way, you will develop quantitative literacy by learning how to acquire spatial data, make digital maps, and critically evaluate mapping applications. NOTE: This course fulfills the Quantitative Literacy (GQ) requirement for students under GenEd and a Quantitative Reasoning (QA or QB) requirement for students under Core. Students cannot receive credit for this course if they have successfully completed CTRP 0821, CRP 0821 or GUS 0821.

Course Attributes: GQ, HO, SI

Repeatability: This course may not be repeated for additional credits.

GUS 0942. Honors Sustainable Environments. 3 Credit Hours.

Humans are at a critical juncture in their relationship with the environment. Many of the global changes occurring in the atmosphere, climate, and oceans can be attributed to human activity. While the standard of living has increased for many people across the globe, the technological advancements that have made this possible endanger future generations because of their environmental impacts. Environmental toxins and air pollution are increasing, and fossil fuels and forests are being depleted at unsustainable rates. Now more than ever, the viability of human life depends on the scientific understanding of global environmental change, and on developing science-based policies to both protect the environment and promote human well-being in a just and sustainable manner. Course mission: enhance your capability to be environmentally informed consumers and citizens based on a sound understanding of the ecological, technological, economic, political, and ethical dimensions of environmental sustainability. NOTE: This course fulfills a Science & Technology (GS) requirement for students under GenEd and Science & Technology Second Level (SB) for students under Core. Students cannot receive credit for this course if they have successfully completed EES/Geology 0842, ENST 0842/0942 or GUS 0842.

Course Attributes: GS, HO, SE, SF, SP, SS

Repeatability: This course may not be repeated for additional credits.

GUS 1021. Urban Society: Race, Class, and Community. 3 Credit Hours.

This course provides an introduction to the contemporary American city, emphasizing the major social trends and public issues that affect individuals and communities in urban settings. We emphasize a cross-disciplinary approach that includes examination of political, economic, spatial, social and historical aspects of city life. We also pay special attention to how racial, ethnic, and social class divisions shape the fabric of urban life. NOTE: This course can be used to satisfy the university Core Studies in Race and Individual & Society (RN) requirements. Although it may be usable towards graduation as a major requirement or university elective, it cannot be used to satisfy any of the university GenEd requirements. See your advisor for further information.

Course Attributes: RN, SI

Repeatability: This course may not be repeated for additional credits.

GUS 1022. Urban Society. 1 Credit Hour.

This course provides an introduction to the contemporary American city, emphasizing the major social trends and public issues that affect individuals and communities in urban settings. We emphasize a cross-disciplinary approach that includes examination of political, economic, spatial, social and historical aspects of city life.

Repeatability: This course may not be repeated for additional credits.

GUS 1025. World Urban Patterns. 3 Credit Hours.

This course provides an introduction to cities around the world. We begin by asking basic questions about the nature of cities and the different approaches to studying them. We explore factors driving urban growth and how this growth affects urban environments. We examine questions of social organization and governance and topics related to planning and the future of the city. NOTE: This course can be used to satisfy the university Core International Studies (IS) requirement. Although it may be usable towards graduation as a major requirement or university elective, it cannot be used to satisfy any of the university GenEd requirements. See your advisor for further information. In addition to meeting the university Core International Studies requirement, this course meets the Non-Western/Third World IS requirement for Communication Sciences majors.

Course Attributes: IS

Repeatability: This course may not be repeated for additional credits.

GUS 1031. Geography of World Affairs. 3 Credit Hours.

This course examines environmental, social, demographic and economic issues in selected world regions. The course may change from semester to semester as we select a range of current topics from each part of the world, which may include, for example, the impact of drought in Africa, tourism in the Caribbean, and rapid economic growth in East Asia. We also address geopolitical themes that reflect the interaction of culture and territory, such as the conflict between ethno-religious groups for control of places that range from Sri Lanka or the Sudan. NOTE: This course can be used to satisfy the university Core International Studies (IS) requirement. Although it may be usable towards graduation as a major requirement or university elective, it cannot be used to satisfy any of the university GenEd requirements. See your advisor for further information. In addition to meeting the university Core International Studies requirement, this course meets the Non-Western/Third World IS requirement for Communication Sciences majors.

Course Attributes: IS

Repeatability: This course may not be repeated for additional credits.

GUS 1052. Introduction to the Physical Environment. 4 Credit Hours.

An environmental approach to the study of earth as a globe, earth-sun relations, weather, climate, vegetation, soils, and the hydrosphere. Abundantly illustrated by slides and films, this course brings to life the causal connections among climate, vegetation, and soils. Natural and human-induced climate change, groundwater and surface water management, and soil erosion are among the environmental problems covered. The laboratories provide hands-on experience on most topics. NOTE: This course can be used to satisfy the university Core Science & Technology Second Level (SB) requirement.

Course Attributes: SB

Repeatability: This course may not be repeated for additional credits.

GUS 1171. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 1172. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 1173. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 1174. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 1175. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 1176. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 1177. Urban Affairs. 2 Credit Hours.

A special topic of current interest in American cities frequently taught by a special lecturer from outside Temple University. Emphasis on a timely public policy issue confronting Philadelphia or its region. NOTE: Topics vary each semester. Contact the department for offerings.

Course Attributes: SI

Repeatability: This course may be repeated for additional credit.

GUS 2001. Cities. 3 Credit Hours.

This course is an interdisciplinary introduction to U.S. cities in the context of contemporary globalization. Students will be introduced to key concepts in the field of urban studies. We will explore different theoretical frameworks for analyzing urban patterns, processes, and daily life. In addition to globalization we will explore social justice.

Repeatability: This course may not be repeated for additional credits.

GUS 2002. Space and Place. 3 Credit Hours.

This course is an introduction to the fundamental principles of human geography and examines the relationships among space, place, environment, and culture in an effort to understand why events and processes occur at specific locations, as well as how those events and processes influence activities elsewhere. Human geography studies flows of people, money, information, cultures, and biophysical processes across space and time especially as these flows are becoming global. The unique convergence of flows in a certain location is what geographers call place. This course will explore some of the key drivers of geographic outcomes including human migration, citizenship, cultural identity, political participation or exclusion, urban life, various understandings of nature and environment, and the effects of global networks and capital on local practices and people.

Repeatability: This course may not be repeated for additional credits.

GUS 2017. Population Geography. 3 Credit Hours.

This course provides an introduction to human populations with respect to size, composition and spatial distribution, and the issues surrounding the geographic distribution of populations at the world, regional, and local level. Emphasis will be placed on the role of population processes (mortality, fertility, migration), and population structures (age, gender, ethnicity), on economic, social, technological and political development and changes in different parts of the world. Topics covered in this course include: population policies, theories of population change, international and domestic migration flows, cultural and economic influences on population processes, urbanization, and population related issues such as food insecurity, political conflict, poverty, health and disease, and environmental degradation. Lectures and exercises will also familiarize students to publicly available population data and introduce basic analytical techniques used to measure fertility, mortality and migration.

Repeatability: This course may not be repeated for additional credits.

GUS 2021. Philadelphia Neighborhoods. 3 Credit Hours.

This course provides an introduction to Philadelphia, its history, its people, and its problems as seen in a cross-section of urban neighborhoods. It combines lectures, readings, and slides with frequent field trips to different parts of the city.

Repeatability: This course may not be repeated for additional credits.

GUS 2022. Gender, Race, Class, and the City. 3 Credit Hours.

This course will focus on the ways that race, class, and gender significantly shape US cities and urban life. The course will explore how urban spaces reflect and perpetuate different relations of power, inequity, and identity. How do multiple and contradictory identities shape one's experience of the city? How are economic, social, and political processes interacting with public policy (or the lack thereof) to determine how resources and power are unequally distributed? How are contemporary urban sustainability initiatives imbued with racial, gender, and class politics? First, we explore critical geographic frameworks for urban analysis that help to explain the social and spatial organization of US cities. We will develop a framework for urban analysis that integrates race, class, and gender, and draws upon the geographic concepts of place and scale. Second, we will use qualitative methods to apply our integrated framework to contemporary metropolitan processes and problems in the Philadelphia area. Key topics that we will address include: everyday experiences of urban life in public and private spaces; environmental (in)justice; neoliberal urban governance; urban social movements; and urban policy and planning. NOTE: The following course numbers are cross-listed: GUS 2022, ENST 2022, or GSWS 2022; students may receive credit for only one of these instances.

Repeatability: This course may not be repeated for additional credits.

GUS 2031. Geography of the Global Economy. 3 Credit Hours.

This course introduces students to the complex economic patterns of the world. It examines why economic activities are distributed in particular ways and the consequences of economic location decisions. It examines a variety of economic activities and geographic perspectives on economic and settlement diversity. Note: This course was previously offered under the title "Economic Geography." Please note that students can receive credit only one time for either "Economic Geography" or "Geography of the Global Economy."

Repeatability: This course may not be repeated for additional credits.

GUS 2032. Urban Systems in a Global Economy. 3 Credit Hours.

This course looks at how the global economy shapes urban society, and how people adapt to the changing global urban world. We begin examining theories, facts and debates on globalization and the development of the global economy. We then look at how cities function within an interdependent global urban system and how people actively respond to the changing economic conditions in cities around the world.

Course Attributes: SI

Repeatability: This course may not be repeated for additional credits.

GUS 2051. Urban Environment. 3 Credit Hours.

This course examines the interactions between theory, policy, and the urban environment. Students have the opportunity to study the urban environment not only as a physical landscape or natural ecosystem, but also as a constructed landscape shaped by local, regional and global social, economic and political processes. The course addresses issues that continue to challenge urban society, including environmental injustice and racism, degradation of local environmental quality, the impact of local-global relationships on community-scale environments and the commodification of nature.

Course Attributes: SE, SF, SP, SS

Repeatability: This course may not be repeated for additional credits.

GUS 2073. African Development. 3 Credit Hours.

This course begins with a historical synopsis of the different forms of development that have taken place on the African continent. Moving beyond preconceived notions of the continent, students will delve into the social, political, economic, and biophysical realms of Africa. Students will read and debate about issues concerning African development, including, colonialism, independence movements, political conflict, globalization, neo-liberalism, society, and health. Ultimately, in this course, students will gain a deeper appreciation of the social, economic, environmental, and political development of Africa and the challenges and opportunities it faces in the future. NOTE: This course can be used to satisfy the university Core International Studies (IS) requirement. Although it may be usable towards graduation as a major requirement or university elective, it cannot be used to satisfy any of the university GenEd requirements. See your advisor for further information. In addition to meeting the university Core International Studies requirement, this course meets the Non-Western/Third World IS requirement for Communication Sciences majors.

Course Attributes: IS, SI

Repeatability: This course may not be repeated for additional credits.

GUS 2074. East and South Asia. 3 Credit Hours.

Introduction to the natural environments and diverse contemporary societies that comprise East, Southeast, and South Asia. Emphasis on such topics as poverty, economic development, and social conditions in India, Thailand, and the Philippines, as well as China, Japan, and Korea. NOTE: This course can be used to satisfy the university Core International Studies (IS) requirement. Although it may be usable towards graduation as a major requirement or university elective, it cannot be used to satisfy any of the university GenEd requirements. See your advisor for further information. In addition to meeting the university Core International Studies requirement, this course meets the Non-Western/Third World IS requirement for Communication Sciences majors. Note: This course is cross-listed with Asian Studies 2074. Students may only receive credit for one of these courses: GUS 2074 or ASST 2074.

Course Attributes: IS, SF

Repeatability: This course may not be repeated for additional credits.

GUS 2197. Research Design in Geography and Urban Studies. 3 Credit Hours.

This course is an introductory survey of research design in Geography and Urban Studies. It is designed to allow students to explore what it means to conduct social science research, particularly around urban and other geographic topics of study. Students have the opportunity to learn how to collect and analyze primary and secondary data. Methods covered include case study research, interview design and technique, analysis of spatial quantitative data, and tools commonly used in community and participatory action research. Individual assignments will focus on researching urban social and cultural topics. This is a writing intensive course and will require extensive writing and revision of your assignments in a semester long assignment sequence.

Course Attributes: WI

Repeatability: This course may not be repeated for additional credits.

GUS 3000. Special Topics in Geography and Urban Studies. 3 Credit Hours.

Seminars on special topics that vary according to the instructor. Check the course schedule for specific seminar topics.

Repeatability: This course may be repeated for additional credit.

GUS 3001. Images of the City in Popular Culture. 3 Credit Hours.

This course examines the representations of the city in the film, fiction, art, and music of the twentieth century. We look at images of cities in general as well as images of specific cities, especially Los Angeles and New York. (When taught in Rome or Tokyo the course focus changes to take advantage of the setting.) Imaginings about the city rely on metaphors - using a work or phrase to describe by referring to another thing not literally appropriate, e.g. urban jungle. We will discuss these metaphors and become familiar with their resonance in popular culture. A large part of the course will focus on methods of visual analysis. Active participation is required.

Repeatability: This course may not be repeated for additional credits.

GUS 3005. The City in History. 3 Credit Hours.

This course looks at the city as a product of human creativity in which the goals of collective life are debated and fought out. The workings of the city are examined in history by focus on the cultural, economic, and political significance of cities as well as on urban design. The course includes visual examples from cities in Europe, West Africa, India, and Southeast Asia as well as a walking tour in the Manayunk section of Philadelphia.

Repeatability: This course may not be repeated for additional credits.

GUS 3013. African Americans in Philadelphia. 3 Credit Hours.

This course examines the historical and contemporary circumstances and roles of African Americans in the Philadelphia context. A critical look at African American migration to Philadelphia, the emergence of African American ethnicity, and the nature and workings of predominantly African American institutions in the city (e.g., families, churches, education, media, cultural and recreational institutions, gangs, political movements, and organizations).

Repeatability: This course may not be repeated for additional credits.

GUS 3015. The Geographic Basis of Land Use Planning. 3 Credit Hours.

An examination of the forces that influence land use planning in and around American metropolitan regions. Considers economic perspectives (land values), public interest perspectives (zoning subdivision, housing and building codes, redevelopment and renewal programs, etc.), and social perspectives of land use. Also examines separately housing, commercial locations, and industrial development. Duplicate credit warning: This course was previously taught under GUS and ENST 4015. Students who have earned credit under the prior number(s) will not earn additional credit if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3016. Contemporary Issues in City Planning. 3 Credit Hours.

Detailed analysis of a specific issue affecting cities and metropolitan areas, usually with a focus on the Philadelphia metropolitan area. Issues such as sprawl, redevelopment, and sustainability are often the focus of the course.

Course Attributes: SE, SI, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3018. Economic Development Planning for Cities. 3 Credit Hours.

Causes of economic decline in American cities, the history of governmental policies to promote urban economic development, and the major tools available to economic planners. Duplicate credit warning: This course was previously taught under GUS 4018. Students who have earned credit under the prior number will not earn additional credits if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3019. Community Development Workshop. 3 Credit Hours.

Students apply the insights, skills and techniques acquired during undergraduate coursework to a number of case studies and assignments drawn from different planning contexts. As in a professional office, students will work in teams to obtain experience in cooperative action and in the management of time and effort. Projects will be selected in order to expose students to the complexity of real problems, and to suggest the range of policy and planning issues which students might encounter after graduation. Senior practitioners in the Philadelphia region work with students in the workshop. Duplicate credit warning: This course was previously taught under GUS 4019. Students who have earned credit under the prior number will not earn additional credit if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3022. Climate Justice. 3 Credit Hours.

This course will examine climate justice through several different lenses. First, it will consider climate justice as geographically distributed, meaning we will explore the unevenness of the production and impacts of climate change. This part of the course will be heavily case-study based. Second, we will think about climate justice as a movement. We will want to know exactly what concept of justice might make sense given the complexity of climate change, but also what shape the climate justice movement will have to take to enact such a notion of justice. This course will thus bring together earth science, policy, politics, economics and geography to better understand how climate justice might be molded to better address the case studies we cover early in the semester. Note: This course is cross-listed with Environmental Studies 3022. Students may only receive credit once for ENST 3022 or GUS 3022.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 3023. Police, Prisons, and Pollution. 3 Credit Hours.

In 2001, a group of farmworkers, environmental justice activists, and anti-prison organizers in California held a conference called "Joining Forces: Environmental Justice and the Fight against Prison Expansion." The goal was to interrogate prisons as forms of environmental racism and injustice and to build coalitions between the anti-prison and environmental justice movements. This course takes as a starting point an insight made by a group of youth participants at that conference: that the greatest threats to their communities constituted "three Ps," police, prisons, and pollution. We will explore critical texts and organizing surrounding police, prisons, and pollution. How do struggles for environmental justice intersect with organizing against police and prisons? How are racial and class disparities heightened through overlapping geographies of policing, incarceration, and environmental pollution? How do policing and imprisonment operate as environmental toxins themselves, much like pesticides and greenhouse gas emissions? As a major component of the course, students will work on group projects examining the intersections of policing, incarceration, and pollution.

Course Attributes: SE, SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3044. Urban Housing. 3 Credit Hours.

An overview of the economic, social, physical, and political forces that structure current urban housing conditions and prospects. Examination of the implications of present trends for the future and the development of rational housing policies, emphasizing the Philadelphia metropolitan area. Duplicate credit warning: This course was previously taught under GUS 4044. Students who have earned credit under the prior number will not earn additional credit if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3051. Environmental Policy Issues. 3 Credit Hours.

How are environmental policies formulated and implemented in the U.S.? Topics include the role of citizen participation in decision-making, the place of environmental impact assessment, environmental justice and equity, intergovernmental relations, and environmental obligations of the U.S. toward less developed countries.

Course Attributes: SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3052. Environmental Problems in Asia. 3 Credit Hours.

Japan is used as an introduction and model for examining environmental issues in several East and Southeast Asian countries. Emphasis is on deforestation, river basin development, urban planning, ecotourism, and the role of non-governmental organizations. Note: This course is cross-listed with Asian Studies 3052 and Environmental Studies 3052. Students may only receive credit once for these courses: ASST 3052, ENST 3052, or GUS 3052.

Course Attributes: SE, SF, SP, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3053. Climatology. 3 Credit Hours.

In this course, we study global climate patterns and the underlying processes that shape them. Among the specific topics we examine are: global distribution of individual climate elements, upper-atmospheric waves and jet streams, use of web-based maps and data, construction of climate models, U.S. climate regions, and major global climatic regions. In the course's final weeks, we consider historic climates, climate change mechanisms, and forecasted future climates.

Course Attributes: SE, SI

Repeatability: This course may not be repeated for additional credits.

GUS 3054. Energy, Resources and Society. 3 Credit Hours.

Vital nonrenewable resources are identified and their global and North American distribution, character, and utilization studied. Special attention to energy sources now in short supply and to benign renewable sources for future needs. NOTE: This course was previously titled "Energy, Resources, and Conservation" and students can receive credit only once for GUS 3054 or ENST 3054.

Repeatability: This course may not be repeated for additional credits.

GUS 3055. Environmental Hazards and Disasters. 3 Credit Hours.

This course provides a synthesis of the social and natural dimensions of disasters. Students become familiar with the concept that disasters emerge when the specific characteristics of hazards (e.g. volcanoes, droughts, floods, tsunamis) intersect with social vulnerability (e.g. class, race, gender). Case studies from around the world are used to elaborate and explore this concept. Duplicate credit warning: This course was previously taught under GUS and ENST 4051 and was previously titled "Geography of Hazards." Students who have earned credit under the prior number(s)/title will not earn additional credit if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3056. Political Ecology. 3 Credit Hours.

This course addresses the broad themes of political ecology as an academic discipline as well as a set of theoretical and methodological tools. Historically political ecology has focused on the rural developing world, but more recent work has branched out into environmental justice and resource use in industrialized societies. The course covers the concepts that have distinguished political ecology from other types of analysis like cultural and human ecology. It also introduces students to the construction of theory including a consideration of space, scale, justice, feminism, property, and nature. Finally, the course presents students with diverse case studies that may include topics like resource use, mining, bio-prospecting, forestry, conservation, fisheries, "sustainable" development, and eco-tourism. Duplicate credit warning: This course was previously taught under GUS and ENST 4056. Students who have earned credit under the prior number(s) will not earn additional credit if the course is repeated.

Course Attributes: SE, SI, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3057. Sustainable Cities. 3 Credit Hours.

This course introduces the concept of urban sustainability and explores environmental problems linked to urbanization, drawing on historical analysis, social theory, landscape ecology, and city planning/design practice. Can we make cities sustainable places to live? If so, how? The goal of this course is to provide students with an opportunity to learn about the major environmental challenges facing cities in the developed and developing world and to learn about innovative solutions that cities are adopting to address them. We will also explore how the political, social, and environmental context affects a city's ability to implement sustainable policies. The course will cover topics such as sustainable city strategies, ecological footprints, urban metabolism, mega-cities, urban ecology, cities and climate change adaptation and mitigation, water management, urban gardening/farming, measuring sustainability, planning strategies, smart growth, carbon neutral cities, metropolitan governance, green buildings, environmental justice, green infrastructure, and green investment strategies, etc.

Course Attributes: SE, SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3058. Environment and Development. 3 Credit Hours.

Is capitalism at the heart of environmental change? What does it mean to divide nations into "developed" and "developing" countries? Whose definition of progress guides policy promoting sustainable urbanization and development? How do we create parks and green infrastructure without displacing people? This course will contextualize these and related questions to understand and think critically about environment and development. By the end of the semester, you will be able to speak, read and write with fluency about contemporary nature-society relations using concrete examples drawn from historical and contemporary contexts. This course is cross-listed with ENST 3058. Duplicate Credit Warning: This course was previously offered as ENST 3097. Students may receive credit for one of the following course numbers: ENST 3097, GUS 3097, ENST 3058 or GUS 3058.

Course Attributes: SE, SF, SP

Repeatability: This course may not be repeated for additional credits.

GUS 3061. Fundamentals of Cartography. 3 Credit Hours.

This course is designed to introduce students to cartography and computer mapping. Through hands-on exercises, students will manipulate data, compare map projections, design, execute, and reproduce small-scale thematic maps suitable for publication using computer software. A final project involves the production of maps in color. NOTE: No prior computer knowledge is necessary.

Repeatability: This course may not be repeated for additional credits.

GUS 3062. Fundamentals of Geographic Information Systems. 3 Credit Hours.

This course teaches the theory and practical use of Geographic Information Systems (GIS). Major components of the course include vector and raster spatial data models and operations, including vector overlay and raster map algebra. At the end of the course students are expected to have an understanding of elementary GIS theory, working knowledge of a GIS software package, and the ability to develop GIS-based solutions to geographic modeling and analysis tasks. Note that students who take ENST 3062 will not receive duplicate credit if they register for GUS 3062.

Repeatability: This course may not be repeated for additional credits.

GUS 3063. Environmental Remote Sensing. 3 Credit Hours.

This course will teach the basic principles of environmental remote sensing using aerial photography and satellite imagery. Topics covered include the mechanics of aerial photography and satellite remote sensing systems, photointerpretation, image rectification, and image processing and classification. Emphasis will be on urban and environmental applications.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (ENST 3062 or GUS 3062)

GUS 3064. Qualitative Methods. 3 Credit Hours.

This class is designed to expose students to the purpose, scope and procedures of qualitative research, applied in different disciplines but especially in environmental studies, geography, and urban planning. It provides an opportunity for students to create qualitative research design schemes, and critically analyze research using these methods. Note: This course is equivalent to ENST 3064; students may receive credit for either ENST 3064 or GUS 3064.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 2197 or ENST 2097)

GUS 3065. Census Analysis with GIS. 3 Credit Hours.

Introduction to analysis with Census data products for the US, including Decennial Census and American Community Survey. Methods for analyzing segregation, environmental justice, migration and mobility, commuting trends, etc. Students will learn how to combine Census data with data from other sources using incommensurate geographies. Heavy emphasis on open source tools. Note: Formerly offered as GUS/ENST 4068. Students who have received credit for GUS 4068, ENST 4068 or ENST 3065 will not receive additional credits for this course.

Repeatability: This course may not be repeated for additional credits.

GUS 3067. GIS and Location Analysis. 3 Credit Hours.

This course examines the concepts and techniques of location analysis - how to 1) describe the spatial arrangements of features on the earth's surface and 2) prescribe the best location or spatial arrangement of features for a particular activity - for economic and social service applications. The course introduces concepts in Geographic Information Systems (GIS) and spatial statistics to address issues of location.

Repeatability: This course may not be repeated for additional credits.

GUS 3069. GIS for Health Data Analysis. 3 Credit Hours.

Geographic Information Systems (GIS) has emerged as an essential tool for health researchers and practitioners. This course provides an introduction to the most common geographic methods utilized in health research and spatial epidemiology for mapping and analyzing health disparities, disease risk factors, health services and geographic variation in health outcomes and disease. Through lecture and laboratory exercises students will learn how to create and edit spatial data, create disease maps, develop neighborhood-based measures, conduct geographic cluster detection and point pattern analysis, map geographic health disparities, measure access to health services, and critically assess potential study bias introduced from missing geographic data or positional accuracy. Selected case studies will be presented in order to highlight methods and techniques and hands-on experience will be gained through laboratory exercises and real-world applications. Guest speakers will be invited to share their real-world examples of GIS in health research and practice.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3161, ENST 3161, SOC 3201, STAT 2103, PBHL 2219, CJ 2602, or ANTH 3771)

GUS 3071. Health Geography. 3 Credit Hours.

Health geography applies concepts and methods from the discipline of geography to study medical and health related events and topics. Health geography has a close disciplinary tie with epidemiology, biostatistics, medical ecology and medical anthropology, but it is differentiated by its focus on the spatial distributions of health/medical related events. Duplicate credit warning: This course was previously taught under ENST and GUS 4071. Students who have earned credit under the prior number(s) will not earn additional credit if the course is repeated. NOTE: This course was previously titled "Medical Geography." Students who completed the course under the prior title will not earn additional credit if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3073. Geography of Travel and Tourism. 3 Credit Hours.

This course examines the fastest growing industry in the world from a geographic perspective. Among the topics to be covered are spatial tourism models, tourism landscapes and the built environment and the impact of tourism on local cultures and economies. Several types of tourism are compared, including rural vs. urban travel, heritage tourism and ecotourism. There is also a special project that focuses on the problems of developing a tourist industry in areas that are prone to political or environmental crises. The course presents examples of both domestic and international travel destinations.

Repeatability: This course may not be repeated for additional credits.

GUS 3076. Metropolitan Tokyo. 3 Credit Hours.

The growth and development of Tokyo, Japan, past and present. The course includes a profile of the city's many neighborhoods, economic activities, architecture, and challenges for urban planners. NOTE: Usually offered at Temple Japan.

Repeatability: This course may not be repeated for additional credits.

GUS 3085. Internship in Geography and Urban Studies. 3 Credit Hours.

This course provides coursework during both the fall and spring semester to accompany on-the-job training with local consulting firms, planning agencies, private companies, non-profits, and various state, local and federal agencies of government, mostly but not exclusively in the Philadelphia metro area. Students apply the knowledge and skills they have acquired in such courses as GIS, cartography, data handling, land use analysis, economic development of cities and others. Students need to arrange their own positions, usually after consulting with the department's internship coordinator. The search for a placement should start several months in advance of the semester or summer session when the internship will take place. The course is available to GUS majors and minors only. NOTE: Must arrange internship independently. Duplicate credit warning: This course was previously taught under GUS 4085/ENST 4085. Students who have earned credit under the prior number(s) will not earn additional credit if the course is repeated.

Repeatability: This course may not be repeated for additional credits.

GUS 3131. Global Capitalism, Labor, and the Environment. 3 Credit Hours.

Extractive industries like fishing, mining, forestry, and farming not only satisfy the material needs of society but also serve as vital sources of employment. Our reliance on natural resources therefore is social, economic, and metabolic. However, people are extracting and consuming renewable and nonrenewable resources at rates unprecedented in human history, in some cases leaving scars of deforestation and mineral excavation that are visible from space. Through case studies and a video project, students in this course will examine how the relationship between labor and the environment has changed over time and will explore alternatives to how we might organize this relationship more sustainably. This course is cross-listed with ENST 3131.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 3161. Spatial Statistics. 3 Credit Hours.

This course provides an introduction to statistical analysis with an emphasis on urban applications. The course covers basic statistical principles of sampling, probability, and tests of significance, measures of association; ordinary least squares regression; factor, principal component and cluster analysis and an introduction to spatial applications of these tools. The course is focused on the practical application of these techniques through exposure to the rationale and principles underpinning them. Students will attend lectures and complete problem sets that provide practical experience in the application of the theoretical concepts and methodologies. Note: This course is equivalent to ENST 3161; students may receive credit for either ENST 3161 or GUS 3161.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (MATH 0701, MATH 0702, MATH 1021, MATH 1022, MATH 1041, 'Y' in MC3, any course with attribute "QA", any course with attribute "QB", 'Y' in MC3A, 'Y' in MC3S, 'Y' in MC4, 'Y' in MC5, 'Y' in MC6, 'Y' in MC6A, 'Y' in MATW, 'Y' in MC3D, 'Y' in MC3O, 'Y' in MC3T, or 'Y' in MC6T)

GUS 3221. Land System Science. 3 Credit Hours.

This course will provide scientific and theoretical foundations and practical applications of land system science. The course will include a description of the main theories and conceptual frameworks used to understand complex interactions between human decisions and ecological processes that derive into changes in the land system. The course also explores the sustainability implications of such changes for biodiversity conservation and people's wellbeing across different locations and scales. Students will become familiar with available technologies for monitoring, modeling and predicting land system change. The course will also draw on concepts and techniques from landscape ecology, land system modeling and scenario building to teach students how to assess social and ecological consequences of land system change and to inform land use decisions. This course is cross-listed with ENST 3221.

Repeatability: This course may not be repeated for additional credits.

GUS 3307. Transportation & Culture. 3 Credit Hours.

Students will learn to approach the modern geography of transportative possibility from a critical standpoint. Rather than accepting this contemporary geography as being the outcome of supposedly "superior" transport technologies' rendering marginalized technologies obsolete, students will examine how processes of cultural, political, and environmental struggle have shaped, opened up, and in some cases limited the modern array of possibilities for human mobility. Waterborne, animal-based, and human-powered modes of transportation will receive special attention, as will ongoing debates and struggles over automobile planning and mass transit. The history of transportation will be presented as necessarily entangled with parallel histories of public protest, working-class knowledge, emergency logistics, human-animal relations, guerrilla warfare, unrealized technologies, and political oppression. The course readings will look at many parts of the world: the United States, Canada, Southeast Asia, North Africa, the Middle East, China, Western Europe, the Caribbean, and Polynesia.

Course Attributes: SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3314. Food Studies: A Geographical Perspective. 3 Credit Hours.

This course introduces students to key issues in food studies from a geographical and environmental perspective. The course includes an overview of the agricultural transitions, and examines issues of food security, access and control, ultimately focusing attention on the question of how to produce more just food systems. A major goal of this course is to give students a basic foundation from which to understand and interpret food systems as well as to familiarize students with today's major issues in research on food. Note: This course is equivalent to ENST 3314; students may receive credit for either ENST 3314 or GUS 3314.

Course Attributes: SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 3900. Honors Special Topics. 3 Credit Hours.

Variable Honors offerings on special topics that are not part of the standard roster of courses.

Course Attributes: HO

Repeatability: This course may be repeated for additional credit.

GUS 3928. Honors Metropolitan Tokyo. 3 Credit Hours.

This is an honors version of Metropolitan Tokyo. The course looks at the growth and development of Tokyo, Japan, past and present. It includes a profile of the city's many neighborhoods, economic activities, architecture, and challenges for urban planners. NOTE: Usually offered at Temple Japan.

Course Attributes: HO

Repeatability: This course may not be repeated for additional credits.

GUS 4000. Special Topics in Geography and Urban Studies. 3 Credit Hours.

Seminars on special topics that vary according to the instructor. Check the course schedule for specific seminar topics.

Repeatability: This course may be repeated for additional credit.

GUS 4013. Drugs in Urban Society. 3 Credit Hours.

This course will provide an introduction to and overview of how illicit drugs have affected communities and individuals in American cities. It will focus on the history of drug use in America, the individual and social consequences of drug use, the lifestyles of crack and heroin addicts, the relationship between drugs and crime, as well as an examination of public policy options to address this problem.

Repeatability: This course may not be repeated for additional credits.

GUS 4017. Health and Environment Seminar. 3 Credit Hours.

This course addresses the relationship between community-level characteristics, such as neighborhood socioeconomic disadvantage, with health outcomes, with an emphasis on health behaviors such as substance use, exercise, and healthy eating. Access to resources such as health services and nutritious food will be examined, as will exposure to harmful or risky environment conditions that can promote disease. A methodological focus will address how environmental influence on health is analyzed, as well as how individual-level characteristics such as age, sex, and race/ethnicity may moderate such influences. The role of community level factors in health disparities will also be examined. NOTE: Students can receive credit only once for either: ENST 4017, GUS 4017, ENST 4917, or GUS 4917.

Course Attributes: SE, SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 4061. Cartographic Production. 3 Credit Hours.

A course concerned with aspects of storage, retrieval, and display of information within geographic data systems. Emphasis will be placed on computer mapping. NOTE: This course is cross-listed with ENST 4061; students will only receive credit for one course from GUS 4061 and ENST 4061.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3061 or ENST 3061)

GUS 4064. Web Mapping and GIS. 3 Credit Hours.

In this course, students will explore theoretical and practical concepts of Web Mapping (GIS and spatial data visualization on the Internet). From a theoretical perspective they will study advantages and techniques for publishing, visualizing and accessing maps and data on the Internet. This entails examining architectures of Web GIS/Web mapping systems, markup languages (e.g. HTML, XML, SVG, and KML), scripting languages, screen cartography, data sharing and geoportals, as well as social and critical perspectives toward web mapping. From a practical perspective they will learn to develop Web mapping applications including static and interactive platforms. They will also learn and work with some well-known open source software and libraries.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3062 or ENST 3062)

GUS 4065. Urban Geographic Information Systems. 3 Credit Hours.

The purpose of this course is to build on the basic principles of the introductory GIS course to demonstrate how GIS may be applied to the analysis of physical and human systems. Topics of the course include vector and raster data integration; address matching, geocoding, and network analysis; terrain and hydrological analysis; and interpolation of environmental and population data. At the end of the course the student is expected to grasp advanced GIS analysis and modeling concepts.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3062 or ENST 3062)

GUS 4066. Environmental GIS. 3 Credit Hours.

Geographic Information Systems are widely used to investigate environmental processes and to develop solutions to environmental issues. This course will build upon concepts introduced in Fundamentals of GIS to investigate how the techniques, data, and interpretations from GIS analysis are applied across a variety of environmental fields. Topics to be covered include natural hazard vulnerabilities, global climate change, renewable energy potential, environmental health, and conservation. Note: GUS 4066 and ENST 4066 are cross-listed. Students may earn credit for only one iteration of the course.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3062 or ENST 3062)

GUS 4068. Census Analysis with GIS. 3 Credit Hours.

Introduction to analysis with Census data products for the US, including Decennial Census and American Community Survey. Methods for analyzing segregation, environmental justice, migration and mobility, commuting trends, etc. Students will learn how to combine Census data with data from other sources using incommensurate geographies. Heavy emphasis on open source tools.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3062 or ENST 3062)

GUS 4072. Advanced Remote Sensing. 3 Credit Hours.

This hands-on course will provide skills and knowledge for the effective and efficient processing and analysis of satellite data for advanced applications with emphasis in the application of remote sensing for detecting and monitoring social and environmental changes. The course will include a semester-long project where students will apply the concepts and procedures learned to their own research or a particular topic of their interest.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3063, ENST 3063, or EES 3011)

GUS 4073. Geovisualization. 3 Credit Hours.

Maps can be powerful devices for communication, but also tools for exploration of relationships among social and physical processes manifesting in space. This computer-intensive course will focus on this dual purpose of maps as tools for visual communication and visual thinking. You will create data-driven products that combine geographic and statistical visualizations for static, interactive, and animated display. Previous experience with a programming language will be helpful. A previous course in cartography is recommended but not required. Heavy emphasis on open source tools.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3161 or ENST 3161)

GUS 4182. Independent Study Research. 1 to 3 Credit Hour.

Reading and/or papers undertaken by the student wishing to study a specific topic, under the active supervision of a faculty member.

Repeatability: This course may be repeated for additional credit.

GUS 4198. Senior Seminar in Geography and Urban Studies. 3 Credit Hours.

A topically organized seminar for senior majors or those obtaining a concentration in Geography and Urban Studies. NOTE: This course is for majors only. Students should take this course during their last semester.

Course Attributes: WI

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in GUS 2197.

GUS 4917. Honors: Health and Environment Seminar. 3 Credit Hours.

This course addresses the relationship between community-level characteristics, such as neighborhood socioeconomic disadvantage, with health outcomes, with an emphasis on health behaviors such as substance use, exercise, and healthy eating. Access to resources such as health services and nutritious food will be examined, as will exposure to harmful or risky environment conditions that can promote disease. A methodological focus will address how environmental influence on health is analyzed, as well as how individual-level characteristics such as age, sex, and race/ethnicity may moderate such influences. The role of community level factors in health disparities will also be examined. NOTE: Students can receive credit only once for either: ENST 4017, GUS 4017, ENST 4917, or GUS 4917.

Course Attributes: HO, SE, SF, SS

Repeatability: This course may not be repeated for additional credits.

GUS 4982. Honors Independent Study Environmental Geography. 1 to 3 Credit Hour.

Reading and/or papers undertaken by the student wishing to study a specific topic, under the active supervision of a faculty member.

Course Attributes: HO

Repeatability: This course may be repeated for additional credit.

GUS 5000. Special Topic Seminars. 3 Credit Hours.

A faculty member offers special seminars in a research specialty. Recent topics have included current perspectives on development, the information and technology needs of low resource community organizations, and information systems design and management.

Repeatability: This course may be repeated for additional credit.

GUS 5006. Sustainable Infrastructures: Theory, Practice and Application. 3 Credit Hours.

Contemporary cities are undergirded by a diverse range of infrastructure networks including energy, water, wastewater, transportation, communication, and social infrastructures. These infrastructures play a pivotal role in shaping sustainable and resilient futures for people living in urban regions and beyond. This seminar offers an immersive exploration of sustainable infrastructures with a strong emphasis on theoretical inquiry and real-world application. Approaches to foster more sustainable and resilient forms of infrastructures and society will be introduced and evaluated. Throughout the course, you will engage in hands-on projects, site visits, and guest lectures by industry experts. You will have the chance to apply your knowledge in real-world contexts, addressing infrastructure challenges faced by communities and municipalities. By the end of the course, you will emerge with a comprehensive understanding of sustainable infrastructures, informed by both theory and practice. This knowledge will empower you to contribute meaningfully to the development of a more sustainable, resilient, and equitable future.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5010. Special Topics in GUS. 3 Credit Hours.

Variable content; see graduate chair for specific details.

Repeatability: This course may be repeated for additional credit.

GUS 5014. Urban Social Geography. 3 Credit Hours.

The course acquaints students with social and cultural understandings of urban space in the U.S. city. Students are asked to use photography to explore how geography grounds itself on the landscape.

Repeatability: This course may not be repeated for additional credits.

GUS 5015. Land Use Planning. 3 Credit Hours.

This course is an examination of the forces that influence land use planning in and around American metropolitan regions. It considers economic perspectives (land values); public interest perspectives (zoning subdivision, housing and building codes, redevelopment and renewal programs, etc.); and social perspectives of land use. Also examined are separate housing, commercial locations, and industrial development.

Repeatability: This course may not be repeated for additional credits.

GUS 5017. Health and Environment Seminar. 3 Credit Hours.

This course addresses the relationship between community-level characteristics, such as neighborhood socioeconomic disadvantage, with health outcomes, with an emphasis on health behaviors such as substance use, exercise, and healthy eating. Access to resources such as health services and nutritious food will be examined, as will exposure to harmful or risky environmental conditions that can promote disease. A methodological focus will address how environmental influences on health is analyzed, as well as how individual-level characteristics such as age, sex, race/ethnicity, and peer and family relationships may moderate such influences. The role of community level factors in health disparities will also be examined.

Repeatability: This course may not be repeated for additional credits.

GUS 5018. Economic Development and Planning Cities. 3 Credit Hours.

The focus is on the causes of economic decline in American cities, history of governmental policies to promote urban economic development, and major tools available to local economic planners, with special emphasis on the political issues of who controls the programs and who reaps the benefits.

Repeatability: This course may not be repeated for additional credits.

GUS 5021. International Urbanization. 3 Credit Hours.

This course examines urbanization around the world. The focus may include issues of rapidly industrializing areas, as well as postcolonial and transition societies. Students address topics related to the effects of rapid social and spatial change in a variety of settings. They also examine the problems of providing housing and urban infrastructure in rapidly urbanizing areas, as well as the social and cultural tensions related to urban change.

Repeatability: This course may not be repeated for additional credits.

GUS 5022. Climate Justice. 3 Credit Hours.

This course will examine climate justice through several different lenses. First, it will consider climate justice as geographically distributed, meaning we will explore the unevenness of the production and impacts of climate change. This part of the course will be heavily case-study based. Second, we will think about climate justice as a movement. We will want to know exactly what concept of justice might make sense given the complexity of climate change, but also what shape the climate justice movement will have to take to enact such a notion of justice. This course will thus bring together earth science, policy, politics, economics and geography to better understand how climate justice might be molded to better address the case studies we cover early in the semester.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5023. Police, Prisons and Pollution. 3 Credit Hours.

In 2001, a group of farmworkers, environmental justice activists and anti-prison organizers in California held a conference called "Joining Forces: Environmental Justice and the Fight against Prison Expansion." The goal was to interrogate prisons as forms of environmental racism and injustice and to build coalitions between the anti-prison and environmental justice movements. This course takes as a starting point an insight made by a group of youth participants at that conference: that the greatest threats to their communities constituted "three Ps," police, prisons and pollution. We will explore critical texts and organizing surrounding police, prisons and pollution. How do struggles for environmental justice intersect with organizing against police and prisons? How are racial and class disparities heightened through overlapping geographies of policing, incarceration and environmental pollution? How do policing and imprisonment operate as environmental toxins themselves, much like pesticides and greenhouse gas emissions? What insights for your own work can you gain from abolitionist organizing and scholarship?

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5028. Environmental Impact Assessment. 3 Credit Hours.

In this course you will learn about the environmental review process and the methods of environmental impact assessment (EIA). During the course of your environmental careers, you may be expected to conduct, reference, evaluate or otherwise incorporate EIA into your work. We will discuss the history and importance of environmental review, the affected environment considered, methods and criteria used for evaluating impact and measures that can be implemented to avoid, minimize or mitigate adverse impacts. We will also discuss recent changes and proposed changes to the National Environmental Policy Act, the importance of agency coordination and public involvement to the environmental review process, and the consideration of climate change and equity in environmental impact assessment.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5031. GIS Programming. 3 Credit Hours.

Building on previous coursework with Geographic Information Systems (GIS), students will learn computer programming in a GIS environment. Students will design and execute spatial data management and spatial analysis projects using automated geoprocessing functions available in the built-in scripting languages of prominent GIS software packages, with an emphasis on the Python programming language. Students will learn programming concepts such as variable typing, function definition, conditional evaluation, looping, and object-oriented programming. The course will also introduce geospatial programming strategies independent of any specific GIS software.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 5032. Geosimulation. 3 Credit Hours.

Geosimulation (or spatial simulation) "is a catch-all phrase" that can be used to represent an emerging stream of spatially-explicit simulation models, often being computationally intensive. Developed at the confluence of geographic information science and computer science, geosimulation incorporates different computational systems such as cellular automata (CA) and agent-based modeling (ABM). This course will explore the conceptual, developmental, implementational, and evaluation aspects of these different simulation modeling systems. We primarily focus on cellular automata, agent-based systems, neural networks, and expert systems using geographical data, (hence spatially-explicit models). Simulation models developed using these techniques are used to investigate patterns and processes of complex systems in different topical areas such as urban growth, climate change, migration, birds and animal movements, environmental health, and conservation. This course builds upon the concepts introduced in Fundamentals of GIS, GIS Programming and other GIS courses offered by the department. The course structure will consist of lecture, class discussion, and lab activities. Students will be expected to read academic and professional literature and to actively participate in and lead class discussions. Students will also be expected to develop a final project on geosimulation modeling topic. Preferably, they will develop and implement a CA or ABM model of their own.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062 and GUS 5031.

GUS 5033. Urban Analytics. 3 Credit Hours.

With the increase of data availability and the computing power together with advanced data analytics, the data driven approach becomes a more objective and scientific way for us to understand the urban system for solving the social, economic, and environmental challenges in cities. Knowledge and skills for collecting and analyzing urban spatial data become an essential skill for urban researchers. This course will teach students the concepts, techniques, and analytical methods for urban analytics. Methods for collecting, storing, processing, analyzing, and visualizing various types of urban data using programming will be taught in this course. Examples of real urban analytics applications will be introduced in this course in order for students to get the practical skills in handling urban spatial data. The course is designed for students who have programming experience and want to reinforce the knowledge and skills and learn advanced topics in urban informatics and urban data analytics for solving urban issues. This course includes lectures and lab exercises. The knowledge and skills learned in this course further prepare students for an emerging career in smart city, data science, GIS, urban planning, and environmental management.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 5034. Applied Machine Learning for Spatial Analysis. 3 Credit Hours.

Machine Learning (ML) is a branch of artificial intelligence that enables computer systems to learn from data and improve their predictive capacity without explicit human intervention. ML algorithms are growingly being applied to solve complex spatial problems due to their ability to efficiently process large, high-dimensional datasets, improve predictive capacity and reveal hidden patterns in data. This course provides conceptual foundations, methods and analytical skills for the application of broadly used machine learning methods to geospatial analysis. The course will enable students to become familiar with basic definitions, conceptual foundations and applications of different machine learning methods. Students will become familiar with the main steps related to the conception, development, evaluation and interpretation of predictive models using machine learning methods. Students will also learn basic computer programming skills for spatial data integration and their use for the calibration and evaluation of spatial machine learning models. Students who took GUS 5074: Applied Machine Learning for Spatial Analysis may not take this course for additional credit.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in (GUS 3062 or GUS 5062) and GUS 5161.

GUS 5041. Sustainable Natural-Human Systems. 3 Credit Hours.

This course provides the scientific basis and theoretical background for understanding the most essential challenges to address sustainability in natural-human systems. The course will provide knowledge about theories, conceptual frameworks and research methods to understand and appreciate the interactions and co-dependencies between human and natural systems. The course will also introduce students to the main global research and policy agendas to understand and address sustainability in natural-human systems.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5042. Climate Change and Security. 3 Credit Hours.

Climate change is widely understood by a range of state and non-state actors to pose significant security risks, but the relationship between climate change and security is much more complex than simple cause and effect. Researchers from diverse fields are actively engaged with questions about what kinds of security are threatened by climate change and through what mechanisms. For example, will severe drought lead to violent conflict? What are the consequences of viewing a problem as a livelihood versus national security risk? Who are the winners and losers of climate change-based security interventions? This course orients students to the evolving debate on the relationship between climate change and its impacts on national, human, and environmental security.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5043. Black Geographies. 3 Credit Hours.

This course explores theoretical and methodological advances made by the interdisciplinary field of Black geographies. Texts and discussions will draw on the discipline of geography along with theorizing from Black studies, Black feminism, queer studies, anthropology, sociology, and political science to highlight how erasures, exclusions, and exploitations of Black people have structured historical and current world conditions. The course will center lessons from Black knowledges, radical struggles, and everyday life practices as a guide for scholarship and action aimed toward reshaping a new, more just world.

Repeatability: This course may not be repeated for additional credits.

GUS 5044. Urban Housing. 3 Credit Hours.

An overview of the economic, social, physical, and political forces that have molded the present urban housing stock is provided. Also examined are the implications of present urban housing stock, implications of present trends for the future, and the development of rational housing policies, emphasizing the Philadelphia metropolitan area.

Repeatability: This course may not be repeated for additional credits.

GUS 5045. Urban Public Spaces. 3 Credit Hours.

This course will explore the role that public spaces, such as parks and libraries, play in cities today. We will evaluate what makes a space "public" and will examine the social, economic, environmental, and health dimensions of urban public spaces and the factors that moderate how equitably the benefits and costs of public spaces are distributed across urban neighborhoods. The goal of the course is to use key theories from different disciplinary perspectives to evaluate the opportunities and limitations of public spaces.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5051. Environmental Hazards and Disasters. 3 Credit Hours.

Natural and technological hazards are the focus for this course. We review the evolution of theoretical and applied conceptualizations of "hazard" and hazard vulnerability, examine the human dimensions of the resultant hazardscapes, and look to past, present, and anticipated "cases on the ground." Our emphasis is on geographical approaches, but this can be read as a broadly interdisciplinary perspective, as is typical of most geographical analysis. Among the varied issues we may take up are metropolitan impacts of climate change, coastal vulnerability, nuclear hazards, seismic threats, and public health threats associated with disease, hunger, and nutrition. Global, as well as U.S. and local perspectives, are integral to the course.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5052. Fundamentals of Sustainability Science and Environmental Justice. 3 Credit Hours.

How can we apply science to promote intergenerational equity in the face of global environmental change? This graduate-level course provides a transdisciplinary introduction to sustainability science, exploring the complex interactions between human and environmental systems. Students will become acquainted with the key concepts, issues, and debates of this integrative field to apply a systems-thinking approach to solve real-world sustainability problems.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5054. Energy, Resources and Society: An Interdisciplinary Approach. 3 Credit Hours.

Despite the importance and ubiquity of "energy" in contemporary debates, the complicated relationship between energy and society, along with its inherent contradictions, is often oversimplified. Plans to replace fossil fuels with electricity come not only at a high ecological cost, as electrical equipment can spark catastrophic fires, but also challenges long-held cultural practices, identities, and norms for many communities; energy development remains a geopolitical project that is intimately connected to war and nation building; and both the benefits of new energy investments and their detrimental environmental effects are unevenly distributed. Moreover, the materiality of energy systems often serves as an undue barrier to its social study. The goal of this course is to give students the broad tools to think critically about energy and society, and its relationship to everyday life.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5056. Political Ecology. 3 Credit Hours.

Political ecology is an integrated, interdisciplinary approach to the study of human-nature relations. This course examines resource use, the construction of landscapes, questions of structure-agency, and definitions of "nature" and "development." We study cases at a variety of spatial scales and settings, and include examples from industrialized countries as well as non-industrialized regions. Topics are diverse, ranging from subsistence fishing to access to green spaces in cities. The critical roles of the state, non-governmental organizations, and individual actors in shaping social, political, and economic landscapes are considered.

Repeatability: This course may not be repeated for additional credits.

GUS 5059. Politics of Water. 3 Credit Hours.

Despite decades of scientific research and policy action aimed at managing water resources equitably and sustainably, it remains that the world's water resources continue to be severely polluted, pose grave hazards to lives and infrastructure, and be obstinately unevenly distributed in space and time. Moreover, an estimated four billion people experience severe water scarcity for at least one month every year. Although such challenges have long been approached with technical expertise (e.g., hydro-engineering, economic models), this course examines the social and political dynamics that underpin these problems. This seminar examines key concepts, major approaches, and current debates regarding water governance in various regions of the world. Course topics include the privatization of water, water as a human right, and human vulnerability to water hazards. In viewing water provision and management as not solely a technical concern but as inherently political, the course seeks to provide a set of analytical tools that is both critical and constructive.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5061. Cartographic Production. 3 Credit Hours.

This course presents advanced approaches to design and production of thematic maps.

Repeatability: This course may not be repeated for additional credits.

GUS 5062. Fundamentals of Geographical Information Systems. 3 Credit Hours.

This course prepares students with the knowledge necessary to effectively use GIS software packages, and covers fundamental principles such as spatial data models, database management systems, network modeling and geo-coding, and basic vector and raster operations.

Repeatability: This course may not be repeated for additional credits.

GUS 5063. Remote Sensing. 3 Credit Hours.

This course introduces students to the most basic concepts and skills for downloading, exploring and processing satellite data for broad remote sensing applications. The course is designed to guide students through the most relevant steps required from acquisition to production for the application of remote sensing to agriculture, forestry, ecology and hydrology, as well as for characterizing and assessing changes in urban and rural landscapes and in seascapes. The course will include weekly lab sessions that will allow students to apply the concepts and procedures learned in class and improve their skills on the use and application of remote sensing information.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3062, ENST 3062, or GUS 5062)

GUS 5065. Urban Geographical Information Systems. 3 Credit Hours.

Assuming basic familiarity with Geographic Information Systems, this course focuses on applying GIS techniques to the study of such processes as urban sprawl, socioeconomic change, and ecological functioning of urban regions.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 5066. Environmental Applications of GIS. 3 Credit Hours.

Geographic Information Systems are widely used to investigate environmental processes and to develop solutions to environmental issues. This course will build upon concepts introduced in Fundamentals of GIS to investigate how the techniques, data, and interpretations from GIS analysis are applied across a variety of environmental fields. Topics to be covered include natural hazard vulnerabilities, global climate change, renewable energy potential, environmental health, and conservation. The course structure will consist of lecture, class discussion, and GIS-based lab activities. Students will be expected to read academic and professional literature and to actively participate in and lead class discussions. Students will also be expected to develop a final project on an environmental topic.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 5067. GIS and Location Analysis. 3 Credit Hours.

This course examines the concepts and techniques of location analysis - how to 1) describe the spatial arrangements of features on the earth's surface and 2) prescribe the best location or spatial arrangement of features for a particular activity - for economic and social service applications. The course introduces concepts in Geographic Information Systems (GIS) and spatial statistics to address issues of location.

Repeatability: This course may not be repeated for additional credits.

GUS 5068. Census Analysis with Geographical Information Systems. 3 Credit Hours.

Students gain an understanding of U.S. census geography and tabular data through the use of GIS. Activities, discussions, and lectures familiarize students with U.S. Census Bureau data, while lab assignments and exercises provide experience using GIS to analyze real world problems. By the end of the semester, students will have learned a variety of advanced GIS techniques and be able to make effective use of census data for academic research.

Repeatability: This course may not be repeated for additional credits.

GUS 5069. GIS for Health Data Analysis. 3 Credit Hours.

Geographic Information Systems (GIS) has emerged as an essential tool for the analysis of health and disease data. This course provides an introduction to the most common geographic methods used for mapping and analyzing health disparities, disease risk factors, health services and geographic variation in health outcomes and disease. Through lecture and laboratory exercises students will learn how to create and edit spatial data, create disease maps, develop neighborhood-based measures, conduct geographic cluster detection and point pattern analysis, locate and map geographic health disparities, measure geographic access to health services, and critically assess potential study bias introduced from missing geographic data or positional accuracy.

Repeatability: This course may not be repeated for additional credits.

GUS 5071. Health Geography. 3 Credit Hours.

This course offers an analysis of the factors responsible for the geographic patterns of disease, mortality, and health care services: the role of the environment in evaluating mortality and disease patterns. NOTE: This course was previously titled "Medical Geography." Students who complete this course under the new title will not receive additional credit.

Repeatability: This course may not be repeated for additional credits.

GUS 5072. Advanced Remote Sensing. 3 Credit Hours.

This hands-on course will provide skills and knowledge for the effective and efficient processing and analysis of satellite data for advanced applications with emphasis in the application of remote sensing for detecting and monitoring socio-environmental changes. The course will include a semester-long project where students will apply the concepts and procedures learned to their own research or a particular topic of their interest. Students will learn programming skills for effective and efficient processing of remote sensing data.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3063, ENST 3063, GUS 5063, EES 3011, or EES 5011)

GUS 5073. Geovisualization. 3 Credit Hours.

Maps can be powerful devices for communication, but also tools for exploration of relationships among social and physical processes manifesting in space. This computer-intensive course will focus on this dual purpose of maps as tools for visual communication and visual thinking. You will create data-driven products that combine geographic and statistical visualizations for static, interactive, and animated display. Previous experience with a programming language will be helpful. A previous course in cartography is recommended but not required. Heavy emphasis on open source tools.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C- in (GUS 3161 or GUS 5161)

GUS 5075. Regional Development. 3 Credit Hours.

This course examines the transformations, beginning with the European expansion 500 years ago, that have, to a large extent, created the regional variation we see today. Theoretical approaches to understanding "modernization" and "development" are considered. This foundation is then built on to look at the historic factors that have shaped different parts of the world. Examined are the political, economic, social, spatial, and environmental processes that have shaped those countries that share a colonial past (our primary focus) as well as North America, Asia, Japan, and Eastern Europe.

Repeatability: This course may not be repeated for additional credits.

GUS 5096. Field Methods in Environmental Justice. 3 Credit Hours.

Local urban environmental problems are considered by members of the class in research teams, with a view toward seeking possible solutions.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5097. Race, Class, Gender in Cities. 3 Credit Hours.

This research seminar examines the spatial dimensions of metropolitan inequality, focusing on how inequality is perpetuated along race, class, and gender lines. Topics include urban growth politics, zoning and land use planning, domestic architecture, racial segregation, poverty, and homelessness. Students design a research proposal based on course materials.

Repeatability: This course may not be repeated for additional credits.

GUS 5159. Geographic Inquiry. 3 Credit Hours.

This course familiarizes students with the theoretical, conceptual, and methodological debates underlying the use of spatial analysis in the social sciences. Students explore how place, space, and scale are conceptualized and utilized to examine urban processes as well as different approaches to spatial representation, including visual, mathematical, digital, and cognitive.

Repeatability: This course may not be repeated for additional credits.

GUS 5161. Statistics for Urban Spatial Analysis. 3 Credit Hours.

This course provides an introduction to statistical analysis of spatial phenomena and processes with an emphasis on urban applications using a variety of economic, demographic, health, crime, and environmental data sets. The course covers the basic principles of sampling, probability, and tests of significance; spatial exploratory data analysis (SEDA); measures of association; ordinary least squares regression; and factor, principal component, and cluster analysis.

Repeatability: This course may not be repeated for additional credits.

GUS 5162. Advanced Statistics for Urban Applications. 3 Credit Hours.

This course teaches advanced statistical methods to examine urban processes and patterns. The course covers spatial point pattern analysis, multivariate regression, logit and probit regression, spatial econometrics, Geographically Weighted Regression (GWR), and hierarchical linear modeling.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: GUS 5161.

GUS 5163. Qualitative Methods. 3 Credit Hours.

This course is designed to foster an understanding of the principles and appropriate application of qualitative methods in Urban Studies. It provides an overview of qualitative research design and emphasizes the connections between grounded theory, explorative inquiry, and thick description. Specific skills that are introduced include participant observation, in-depth and open-ended interviewing, oral histories, case study analysis, focus groups, narrative analysis, content analysis, archival analysis, and social action methods. The course examines the limitations and advantages of qualitative approaches, triangulation with quantitative methods, and ethical issues in conducting research.

Repeatability: This course may not be repeated for additional credits.

GUS 5165. Community Based Program Evaluation. 3 Credit Hours.

The course focuses on how to design and conduct evaluation plans that are useful for improving community-based human service and educational programs, as well as the challenges encountered in conducting evaluations in real world settings. A major emphasis is on the various methods and issues involved in conceptualizing, planning, conducting, and utilizing program evaluations. Among the topics covered are logic models and program theory, evaluability assessment, needs assessment, and process and outcome evaluation design.

Repeatability: This course may not be repeated for additional credits.

GUS 5221. Land System Science. 3 Credit Hours.

This course will provide scientific and theoretical foundations, and practical applications of land system science. The course will include a description of the main theories and conceptual frameworks used to understand complex interactions between human decisions and ecological processes that derive into changes in the land system. The course also explores the sustainability implications of such changes for biodiversity conservation and people's well-being across different locations and scales. Students will become familiar with available technologies for monitoring, modeling and predicting land system change. The course will also draw on concepts and techniques from landscape ecology, land system modeling and scenario building to teach students how to assess social and ecological consequences of land system change and to inform land use decisions.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 5304. Food Studies. 3 Credit Hours.

This course introduces students to key issues in food systems from a geographical and environmental perspective. The course begins with an overview of what constitutes a food system and critically examines agricultural transitions that took place over the last century, including the erasure of nondominant rural imaginaries. After, the course turns to look at issues of food security, access and control, focusing our attention to the question of how to produce more just food systems. We end with an exploration in critical nutrition and food-body relationships.

Repeatability: This course may not be repeated for additional credits.

GUS 5307. Transportation and Culture. 3 Credit Hours.

Students will learn to approach the modern geography of transportative possibility from a critical standpoint. Rather than accepting this contemporary geography as being the outcome of supposedly "superior" transport technologies' rendering marginalized technologies obsolete, students will examine how processes of cultural and political struggle have shaped, opened up, and in some cases limited the modern array of possibilities for human mobility. Waterborne, animal-based, and human-powered modes of transportation will receive special attention, as will ongoing debates and struggles over automobile planning and urban mass transit. The history of transportation will be presented as necessarily entangled with parallel histories of public protest, political struggle, emergency logistics, human-animal relations, and environmental geography. The course readings will look at many parts of the world.

Course Attributes: SI

Repeatability: This course may not be repeated for additional credits.

GUS 8006. Geographic Thought. 3 Credit Hours.

This course reviews current concepts and methods used in geographic and urban interdisciplinary research. The major goals are to have students trace the pedigree of their research interests and develop a bibliography of essential readings.

Repeatability: This course may not be repeated for additional credits.

GUS 8010. Geographic Inquiry. 3 Credit Hours.

Repeatability: This course may not be repeated for additional credits.

GUS 8011. History and Theory of Urban Studies. 3 Credit Hours.

This course provides students with the foundational knowledge to pursue graduate studies in the interdisciplinary field of Urban Studies. It surveys the historical and philosophical bases of contemporary urban studies and provides an introduction to contemporary explanatory frameworks and associated critiques in the social sciences.

Repeatability: This course may not be repeated for additional credits.

GUS 8016. Public Policy for Urban Regions. 3 Credit Hours.

This course introduces students to the major policy approaches used to sustain and develop cities and regions in the United States and beyond - i.e., direct government intervention, market models, and third sector institutions. The course examines the changes brought about by globalization in the scope and function of governments, including regulatory regimes and privatization of services and infrastructure. Students analyze the consequences of different policy approaches for social equity, environmental sustainability, and economic growth.

Course Attributes: SI

Repeatability: This course may not be repeated for additional credits.

GUS 8021. Geography of Urban Services. 3 Credit Hours.

The course provides an analysis of concepts basic to understanding spatial service patterns and emphasizes use of models in service area delineation.

Repeatability: This course may not be repeated for additional credits.

GUS 8031. Critical Issues in Globalization, Sustainability, and Social Justice. 3 Credit Hours.

This course explores the theories, facts, and debates related to globalization, sustainability, and social justice, the themes that are critical to understanding contemporary urban conditions and dynamics. It provides students with an overview of a wide range of issues, in a number of U.S. and international settings, and at several spatial scales. The material is foundational for making decisions on research topics.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 8033. Urban Economic and Spatial Structure. 3 Credit Hours.

This course provides an introduction to the analysis of urban economic and spatial structure. Key ideas from urban economic theory (comparative advantage, scale economies, location economies, urbanization economies, clustering, increasing returns) are introduced. They are combined with key ideas from trade theory (transportation cost and globalization) and the impact of federal, state, and local government policies on creating and changing internal structures of cities and their consequences for access and distribution in fragmented metropolises.

Repeatability: This course may not be repeated for additional credits.

GUS 8043. Seminar on Homelessness in America. 3 Credit Hours.

This course explores various issues relating to homelessness, with a focus on public policy and research. A dominant theme is how public policy decisions have contributed to this problem. Topics are the experience of being homeless, the epidemiology of homelessness, structural and individual theories of homelessness, the history of homelessness in the United States, substance abuse and mental illness among the homeless, homeless women and children, homelessness in Philadelphia, and public policies needed to address the problem.

Repeatability: This course may not be repeated for additional credits.

GUS 8045. Poverty and Employment. 3 Credit Hours.

The course examines the relationships among the globalization of the economy, economic restructuring, metropolitan labor markets, and poverty focusing on contemporary U.S. cities. It evaluates theoretical and public policy debates about employment and poverty. Particular attention is paid to how class, gender, and racial inequities are reproduced in the urban economy.

Repeatability: This course may not be repeated for additional credits.

GUS 8047. Comparative Urban History. 3 Credit Hours.

The course reviews methodological tools for comparative readings and research on the history of cities, across cultural and chronological boundaries.

Repeatability: This course may not be repeated for additional credits.

GUS 8050. Environmental Seminar. 3 Credit Hours.

This course examines the ecological consequences of contemporary economic development. Focus is on countries at the low end of the developmental scale in Latin America, Africa, and South Asia. The course illustrates through case studies how changes in the relations of production give rise to increasing degradation of resources.

Course Attributes: SF

Repeatability: This course may be repeated for additional credit.

GUS 8055. Sustainable Cities. 3 Credit Hours.

This course introduces the concept of sustainability and explores environmental problems linked to urbanization, drawing on historical analysis, social theory, landscape ecology, and city planning/design practice. Primary topics covered include social and economic drivers of urban development and suburban sprawl; the principle of carrying capacity; the measurement of landscape-scale ecological function (e.g., habitat fragmentation); and the use of decision support tools to generate alternative policy scenarios for urban sustainability planning.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 8061. Big GeoSpatial Data. 3 Credit Hours.

In Big data era, knowledge and skills for collecting and analyzing big spatial data become an essential skill for spatial data scientists. This course will teach students the concepts, techniques, and analytical methods for big spatial data. Methods for storing, processing, analyzing, and visualizing various types of big spatial data using cloud computing and advanced Python programming will be taught in this course. Examples of real big spatial data applications will be introduced in this course in order for students to get the practical skills in handling big spatial data. The course is designed for students who have programming experience or have finished GUS 5031 (GIS Programming) previously and want to reinforce the programming skills and learn advanced computing skills for solving big geospatial data problems. This course includes lectures and lab exercises. The knowledge and skills learned in this course further prepare students for an emerging career of Spatial Data Science.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5031.

GUS 8065. Cartographic Design. 3 Credit Hours.

This course introduces students to computer-based cartographic design for both online and paper publishing. Principles of cartography including symbolization, layout, color, and typography will be applied to the creation of reference maps and thematic maps. Strong emphasis on achieving eye-catching, informative, and unambiguous visual communication through the use of industry-standard GIS and graphic design software.

Repeatability: This course may not be repeated for additional credits.

GUS 8066. Application Development for Geographic Information Systems. 3 Credit Hours.

This course introduces students to geospatial software development through the creation of standalone software applications and plugins that add new functionality to major GIS software products. The emphasis will be on geospatial algorithms and object-oriented programming. Other topics in software design will be addressed including documentation, version control, user interface design, software testing, and software project management. The course will be taught using Python, JavaScript, or another major programming language with strong geospatial support. There will be a heavy emphasis on Free and Open Source Software, and active participation in the developer community outside of the classroom. At the end of the course students will have produced fully functioning geospatial software, shared their code to a public online repository, generated documentation, and promoted their work publicly.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062 and GUS 5031.

GUS 8067. Spatial Database Design. 3 Credit Hours.

The focus of this course is on the design and management of spatial databases. Topics covered include the database design process, spatial storage and access methods, relational and object-relational database models, and spatial query languages. Students will learn fundamental spatial database design concepts as well as their implementation and application within geographic information systems (GIS). Emphasis is placed on developing skills necessary for management of both desktop and enterprise-wide GIS databases. At the end of the course students are expected to know how to design relational and object-relational schemas for GIS databases, implement database designs in spatial database management systems (DBMS), and retrieve and manage spatial data in a GIS database.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 8068. Web Mapping and Map Servers. 3 Credit Hours.

In this course, students will explore theoretical and practical concepts of Web GIS (Internet GIS). From a theoretical perspective they will study about advantages and techniques for publishing, visualizing and accessing maps on the Internet including architecture of Web GIS/Web mapping systems, markup languages (e.g. HTML, XML, SVG and GML), a scripting language, screen cartography, data sharing and geoportals, spatial web services and OGC standards. From a practical perspective they will learn to develop Web GIS/Web mapping applications including static and interactive web mapping systems. They will also learn and work with some famous open source software and libraries for developing a Web GIS.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 8069. GIS Ethics and Professional Practice. 3 Credit Hours.

The focus of this course is on the ethical use and application of spatial data and geographic information systems and technologies. Topics covered include overviews of the geospatial industry and GIS profession, issues of spatial data sharing, the maintenance of privacy, and laws applicable to spatial data and GIS. Students will learn about the primary GIS industry sectors and professional organizations, and the codes of ethics and codes of conduct associated with being a GIS professional. A variety of case studies presenting ethical issues relating to the ethical use and application of spatial data and GIS are presented and discussed throughout the semester as a vehicle for exploring issues of ethics and professional practice. At the end of the course students are expected to be able to define the GIS industry, its sectors, and its workforce; explain the legal and ethical issues germane to the GIS profession; demonstrate familiarity with potential ethical challenges presented to GIS professionals; and understand how established codes of ethics and conduct apply to the GIS profession.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 8097. Research Design. 3 Credit Hours.

The goals of this course are to provide students with an understanding of the basic concepts underlying different spatial approaches to research design and analysis. The course emphasizes fundamentals of designing investigations using a variety of methods and data to better understand urban processes, problems, and topics. Students learn to critically evaluate and conduct research, formulate meaningful research questions, design studies using different research methods, and develop a rigorous research proposal.

Repeatability: This course may not be repeated for additional credits.

GUS 8113. Sustainability Ethics and Professional Practice. 3 Credit Hours.

This course deals with applied, empirical research experience on issues affecting communities, often in the Philadelphia region. Students conduct research projects in collaboration with community organizations working for a more sustainable future. The course includes the study of contemporary environmental issues, broadly defined, and training in ethical community partnerships, research methods, applied research techniques, report writing, and engaging in community-driven research.

Course Attributes: SF

Repeatability: This course may not be repeated for additional credits.

GUS 8985. Teaching in Higher Education: Social Sciences. 3 Credit Hours.

Repeatability: This course may not be repeated for additional credits.

GUS 9082. Independent Study: Geography and Urban Studies. 1 to 3 Credit Hour.

Repeatability: This course may be repeated for additional credit.

GUS 9083. Readings in Geography. 3 Credit Hours.

Repeatability: This course may be repeated for additional credit.

GUS 9085. Internship in Geography and Urban Studies. 3 Credit Hours.

The internship provides on-the-job training for graduate students with local consulting firms, planning commissions, community organizations, and various state, local, and federal government agencies in the Philadelphia metropolitan area.

Repeatability: This course may be repeated for additional credit.

GUS 9086. Internship Paper. 1 to 6 Credit Hour.

Students complete a summary paper that is based on their experience in the field.

Repeatability: This course may be repeated for additional credit.

GUS 9087. Mapping Practicum I. 3 Credit Hours.

Students are assigned cartographic projects and encouraged to plan, design, and execute them for faculty and those from outside firms and planning agencies.

Repeatability: This course may be repeated for additional credit.

GUS 9187. GIS Capstone. 3 Credit Hours.

The GIS Capstone course provides an experiential learning experience for students matriculated in the Professional Science Master's in GIS program at Temple. Students engage in a structured internship experience (140 hours during the semester), identified with the guidance of PSM faculty at Temple and a prospective employer. The student will complete a GIS-oriented project during the internship that draws on the GIScience and professional skills developed through the PSM curriculum. Student performance will be evaluated based on three criteria: 1) employer report of student performance during the internship, 2) student presentation of project, and 3) student-submitted report of project. The projects will be presented to PSM faculty and students at the conclusion of the semester and reports will be made available to employers and members of the Advisory Board. This course is required for all students matriculated in the GIS PSM at Temple. Students are expected to complete 140 hours of internship experience during the semester and to participate in an online course to reflect on their experiences during the internship. Students MUST have their internship opportunity approved by the instructor prior to the start of the semester.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in GUS 5062.

GUS 9188. Sustainability Capstone. 1 to 3 Credit Hour.

The Sustainability Capstone course provides an experiential and industry-relevant learning experience for students matriculated in the Professional Science Master's (PSM) in Sustainability program at Temple University. Students will engage in a structured internship experience (46-140 hours during the term), identified with the guidance of the PSM faculty at Temple and a prospective employer. The student will complete a sustainability-oriented project during the internship that draws on their knowledge and skills gained in the program and their primary interest. The completed capstone project will include a mutually agreed upon deliverable to the employer and a public presentation.

Course Attributes: SF

GUS 9991. Master's Research Paper. 3 Credit Hours.

Students develop a high-quality research paper on a topic of their choice. Students connect the development of their paper to their work within a specific course as a means of facilitating their project. Students also work with an individual advisor to develop the content, implement the project design, and approve the final paper.

Repeatability: This course may be repeated for additional credit.

GUS 9994. Doctoral Qualifying Examination. 1 Credit Hour.

Preparation for the preliminary examination.

Repeatability: This course may be repeated for additional credit.

GUS 9996. Masters Research. 1 to 6 Credit Hour.

Repeatability: This course may be repeated for additional credit.

GUS 9998. Dissertation Proposal. 1 to 3 Credit Hour.

Preparation of the dissertation proposal in consultation with the primary dissertation supervisor.

Repeatability: This course may be repeated for additional credit.

GUS 9999. Dissertation Research. 1 to 6 Credit Hour.

After passing the Qualifying Exam, continuous registration in 9999 during the Fall and Spring semesters is required until the dissertation is successfully defended. One credit is the minimum required each semester after the proposal defense and while the student is researching and writing the dissertation. A minimum of 2 s.h. of GUS 9999 must be taken before one can secure the PhD degree.

Repeatability: This course may be repeated for additional credit.