2021-2022 Sustainability Focused and Inclusive Academic Course Inventory				
Course Code	**Course Title**	**Course Level**	**Course Description**	**Sustainability Focused or Inclusive**
AFAM 1225	Gender, Race, and Medicine	UG	Examines the basic tenets of "scientific objectivity" and foundational scientific ideas about race, sex, and gender and what these have meant for marginalized groups in society, particularly when they seek medical care. Introduces feminist science theories ranging from linguistic metaphors of the immune system, to the medicalization of race, to critiques of the sexual binary. Emphasizes contemporary as well as historical moments to trace the evolution of "scientific truth" and its impact on the U.S. cultural landscape. Offers students an opportunity to develop the skills to critically question what they "know" about science and the scientific process and revisit their disciplinary training as a site for critical analysis. AFAM 1225, HIST 1225, and WMNS 1225 are cross-listed.	Inclusive
AFAM 2355	Race, Identity, Social Change, and Empowerment	UG	Examines racism, racial identity, and theories of social change and racial empowerment primarily within the U.S. context. Highlights different ways in which racism and racial privilege have been experienced by different racial communities, more specifically at the micro-, meso-, and macro-levels. Offers students an opportunity to learn ways to promote racial empowerment and equity. Using theory from primarily psychology and sociology, the course investigates the impact of social systems and institutions on individual-level and group experiences of racism. Investigates students' own racial identities, a deeper understanding of institutional inequalities and intersectionality, and practical skills in leadership and community building that can promote positive social change and racial equality. AFAM 2355 and HUSV 2355 are cross-listed.	Inclusive
AFRS 1101	Introduction to African Studies	UG	Uses a multidisciplinary approach to offer an introduction and overview of the geographical, demographic, socioeconomic, and political conditions of the African continent, emphasizing sub-Saharan Africa. Africa, "the cradle of humankind," is a vast, complex continent of diverse peoples that has fascinated observers and evoked multiple images. Topical areas of interest range from ethnic relations, politics, colonial experience, and international relations to religion, environment, health, economic development, gender, culture, and literature. Course materials aim to provide contemporary African perspectives and analyses that offer students an opportunity to acquire and interpret broad knowledge about the continent.	Inclusive

AFRS 1270	Introduction to Global Health	US | UG	Introduces global health in the context of an interdependent and globalized world focusing on four main areas of analysis: infrastructure of global health; diseases; populations; and terms, concepts, and theories. While the focus is on lower-income countries, the course examines issues in a broader global context, underscoring the interconnections between global health disparities and global health policy response. Applies case studies describing interventions to improve healthcare in resource-poor settings in sub-Saharan Africa and elsewhere to help illuminate the actors, diseases, populations, and principles and frameworks for the design of effective global health interventions. AFRS 1270 and PHTH 1270 are cross-listed.	Inclusive
AFRS 2307	Africa Today	UG	Offers a basic survey of the latest innovations and cultural and socioeconomic trends of 21st-century Africa. Examines the political transformations of some of the 49 Sub-Saharan African nations. Focuses on a culturally and ethnically diverse continent of five regions with linguistic and religious diversity and tribal societies reflecting an ancient triple heritage—Indigenous, Arab, and European. Presents complex and critical perspectives on topics including governance and civil strife, gender empowerment, the impact of globalization, trade and investment developments, public health challenges, the visual and performing arts, identity formation among a rising youth demographic to pervasive mobile technology, food security, and the new "African" passport.	Inclusive
AFRS 2464	Natural Resources and Sustainable Development	UG	Examines the social dimensions of resource extraction. Focusing mainly on developing nations, studies global issues, including developments in industrial nations, to assess their impact on resource extraction and living and working conditions in resource-rich regions. Uses case studies of key countries producing oil/gas, minerals, and forest/agricultural commodities to illustrate the past/current causes of resource mismanagement; their social consequences; and how public policies, legislation, and financial and human resource management with industrialization can be used to avert or reduce the adverse effects of resource extraction, especially in poor countries. Major theories examined include the resource curse and alternative approaches to problems faced by resource-bearing developing nations. AFRS 2464 and INTL 2464 are cross-listed.	Focused
AFRS 3424	Epidemiology of Pandemic Diseases and Health Disparities in the African Diaspora	UG	Examines the epidemiology and determinants of diseases and the public health practice among continental African peoples and African-derived populations in the Americas and elsewhere in the African Diaspora. Emphasizes such epidemic diseases as malaria, yellow fever, tuberculosis, smallpox, the current AIDS pandemic, obesity, and cancer. The course also aims to critically address the breadth of factors behind these pandemics, such as socioeconomic, political, health system, behavioral, and genetic. A cross-cutting theme throughout the course is the entrenched health disparities in society.	Inclusive

AFRS 4939	Community Health, Culture, and Development in Kenya	UG	Introduces the community health and development arena in Kenya. Community development has been presented as the panacea to many of Africa's problems, including leadership, democracy, conflict, disease, and poverty. Through teaching, research, and action, the course seeks to expose and sensitize students to the global and local debate on poverty, primary healthcare, and community development. Offers students an opportunity to gain hands-on experiences in some of the major determinants and solutions to poverty and disease by interacting with community stakeholders and organizations in a variety of cultural, rural, and urban settings and through visits to, and participating in, projects run by community-based organizations.	Inclusive
ANTH 4500	Latin American Society and Development	UG	Explores the processes of social, economic, and cultural change in Latin America. While concentrating on the present, traces class formation, agrarian structures, ethnic identity, ceremonial organization, gender roles, and political conflict since the colonial era in a range of countries. Emphasizes the relationship of communities and national political and economic systems. May emphasize Central America and Mexico or countries in South America through case studies. ANTH 4500 and INTL 4500 are cross-listed.	Inclusive
ANTH 4510	Anthropology of Africa	UG	Explores Africa's changing place in the world. Studies the history of Africa and explores the role of ethnography in the making of colonial Africa and the cultural transformations and continuities produced by the emergence of African cities during and after colonialism. Studies postcolonial Africa to critically and comparatively engage with contemporary issues facing African societies. Considers the efflorescence of new cultural forms of music, art, film, and literature, in conjunction with new sources of identity such as nationality, religion, ethnicity, consumption, and migration. AFRS 4510, ANTH 4510 and INTL 4510 are cross-listed.	Inclusive
ARCH 1310	Buildings and Cities, A Global History	US | UG	Introduces students to architecture, as understood through buildings, cities, and landscapes from antiquity to the present. Studies important monuments in the global history of architecture, as well as tools for analyzing the built environment. Considers buildings in relation to their political, social, economic, and cultural context, and as expressions of diversity in human societies and cultural perspectives. Topics include the language of architecture, architectural drawings, the classical orders, the problem of ornament, construction techniques, materials, site,and the role of the patron. Develops students' eye for composition in two and three dimensions, aesthetic discrimination of detail, ability to see buildings as part of a larger social and cultural fabric, and critical judgment in speaking and writing.	Inclusive

ARCH 1450	Understanding Design	UG	Introduces undergraduates at all levels to the importance of design thinking as a method of critical inquiry and creative expression. Class meetings include lectures and discussions on the power of design thinking to shape diverse facets of the natural and built environment—from cities and landscapes, to buildings and interiors, to the scale of the human body. In addition to class presentations, hands-on workshops introduce students to a range of tools and tactics for working creatively and iteratively through design and prototyping.	Inclusive
ARCH 2140	Urban Institutions	UG | GR	Studies how to analyze, model, and intervene in the city. Offers students an opportunity to engage in urban analysis, urban massing strategies, and architectural design of urban institutions.	Inclusive
ARCH 2260	Introduction to Building Systems	UG	Introduces fundamentals of building technology and explores technology as means and manifestation of architecture in the world. Using a systems approach, studies the interactions among natural forces, material properties, technological capabilities, and human cultural values and the ways these relationships give rise to architecture. Considers a series of physical principles--including gravity, moisture, heat, light, and air--to reveal specific architectural possibilities and material responses. Explores the ways design shapes the interaction of materials and forces to provide for human safety, shelter, comfort, and delight through a combination of hands-on workshops, seminal readings, and design exercises.	Inclusive
ARCH 2330	Architecture and the City in the Nineteenth Century	UG | GR	Focuses on the history and theory of architecture and urban design in the nineteenth century. Emphasizes European architecture and urbanism and the ways in which European approaches to design shaped and were shaped by sustained cultural, political, and economic exchange with the Americas, Africa, and Asia. Major topics include the birth of the modern city and urban planning, capitalism and industrialization, new building typologies, infrastructure, urban parks and early suburbs, and new materials and technologies.	Inclusive
ARCH 2355	Architecture Conservation: Intervention, Transformation, and Reuse	UG	Examines how architecture and urban design respond to the challenges of intervening in already built environments, whether in the form of adaptation, extension, conservation, radical transformation, or sustainable reuse. Discusses cultural, social, as well as energy-efficiency-related topics. Includes a critical introduction to the key concepts of architectural intervention, followed by some exemplary design cases, and a special focus on recent and contemporary practices. Architecture deals with time, duration, change, and resilience. Places, not unlike palimpsests, retain multiple traces of former uses. Architects work with locations that inevitably contain a diversity of references and preexisting conditions. Students work on a “curatorial project," that is, a conceptual proposal for an ephemeral intervention in an existing site.	Focused

ARCH 3170	Architecture, Infrastructure, and the City	UG	Offers a studio course addressing the architectural and urbanistic consequences at the intersection of large-scale infrastructure and the contemporary city. Focuses on how to integrate buildings and neighborhoods with highways, rail lines, storm water management, bus, bike, parking, rivers, watersheds, and industrial networks.	Inclusive
ARCH 3210	Environmental Systems	UG	Explores the interaction of environmental, physical, and energy systems in architecture. Offers students an opportunity to learn the fundamentals of building science as design opportunities to create particular conditions of light and shadow; provide shelter from heat, cold, and rain; and incorporate systems that provide for water, electricity, and sanitation. Course revolves around a series of workshops, labs, and design exercises.	Focused
ARCH 5210	Environmental Systems	UG | GR	Explores the ways in which architectural form can create particular conditions of light and shadow; provide shelter from heat, cold, and rain; and incorporate systems that provide for water, electricity, and sanitation. Provides a series of simple and straightforward small-scale design projects.	Focused
ARCH 5220	Integrated Building Systems	UG | GR	Studies how to integrate into students' building designs all the environmental and tectonic systems that they have covered in previous architecture courses.	Inclusive
AVM 1200	Fundamentals of Safety, Health, and Environmental Issues	UC	Offers a comprehensive overview of health and safety issues as they relate to the environment and the workplace. Introduces students to the scientific and technical foundations of the subject, including environmental pollutants and biological, chemical, and physical agents. Policy decisions and safety regulations provide a solid basis for students to recognize hazards at the workplace and in the environment. Offers students an opportunity to become familiar with standard workplace policies, procedures, and guidelines. Covers personal protection, recording, and accident investigation procedures. Subjects are presented and discussed based on historic examples such as the Bhopal gas leak, the Chernobyl explosion, and others.	Inclusive
BIO 1100	Principles of Biology 1	UC	Introduces a variety of biological concepts. Surveys plant and animal characteristics by comparing cell structure and function. Examines specific elements of structure, function, and natural history. Specific topics include cytology, histology, physiology, genetics, cellular respiration, and botany.	Inclusive
BIO 2100	Microbiology	UC	Emphasizes the close relationship between the development of technology and science. Compares prokaryotic and eukaryotic cellular morphology and physiology, including bioenergetics, carbohydrate metabolism, and cellular nutrition and growth. Studies viral replication, microbial genetics, bacterial taxonomy, and evolution. Discusses the principles of epidemiology and public health related to food, water, and sewage microbiology and the role of microbes in fermentation and industrial and environmental microbiology.	Inclusive

BIOL 1111	General Biology 1	UG	Explores basic principles of biology with a focus on those features shared by all living organisms and seen through the lens of evolutionary theory. Through lectures, readings and discussion, offers students an opportunity to understand how the scientific method has been and is used to address biological questions. Central topics include recent advances in cell anatomy and physiology, including the interplay between organelles, membrane transport, and cell-signaling; energy transfer through cells and through the biosphere; cellular reproduction and cancer; heredity and human genetic disorders; and protein synthesis and biotechnology. Explores the societal implications of such topics as biopharmaceuticals, ocean acidification, climate change, human diseases, epigenetics, cancer, and cloning.	Inclusive
BIOL 1113	General Biology 2	UG	Continues BIOL 1111. Examines the evolution of structural and functional diversity of organisms; the integrative biology of multicellular organisms; and ecological relationships at the population, community, and ecosystem levels.	Inclusive
BIOL 1141	Microbes and Society	UG	Introduces the unseen world of microorganisms. Students analyze how the growth and behavior of this diverse group of organisms affect many aspects of human society including agriculture and food preparation; drug development and manufacture; liquid and solid waste management; genetic engineering; geochemical cycles; and health and disease.	Inclusive
BIOL 1143	Biology and Society	UG	Offers an overview of how biology weaves its way across a broad spectrum of complex societal issues. Introduces students to the biological mechanisms and processes responsible for genetic inheritance, energy transfer, evolution, and population dynamics, providing a framework within which students may critically interpret and discuss important biological information provided in public forums. Seeks to empower students to make informed choices at the policy and personal levels. Offers students an opportunity to acquire an understanding of the basic principles of biology and apply the scientific process to the analysis of contemporary issues. Using a thematic approach, covers a wide range of issues including the reemergence of plagues, biological weapons and security, the environment, and human health and wellness.	Focused

BIOL 2329	Bioethics	UG	Offers students an opportunity to explore ethical issues arising from biological research and emerging technologies, to learn to identify and critically analyze potential ethical implications of biological research, and to evaluate theory-based arguments while respectfully engaging with a diversity of perspectives. Using their knowledge of basic cellular and molecular science as a foundation, students have an opportunity to gain a deeper understanding of the biology of genome editing and other molecular and cellular biology-based technologies. Examines the history and ethical dialogue around genome editing as an in-depth example of an emerging technology with wide-ranging applications. Studies additional technologies with respect to research progress, international perspectives, and potential implications in the areas of security, environmental protection, and personal health.	Inclusive
BIOT 6100	Agricultural Biotechnology	UC | GR	Explores the key agricultural biotechnology (agritech) principles and methods that are used in industry today; serves as a foundational course exposing students, briefly, to all aspects of agritech. Topics covered include gene transfer and genetic modification; cloning; plant biotechnology, animal science, food and ecological biotechnology; consumer concerns; safety testing; and other issues related to agritech.	Inclusive
BTC 4450	Quality Control and Validation Issues	UC	Introduces the regulations and guidelines affecting the development, production, registration, and sale of medical devices, diagnostics, pharmaceuticals, and biotechnology products worldwide. Focuses on why regulations are necessary, ethical considerations, and international standards. Offers practical instruction in the basics of quality control and process/facility validation for the biotechnology industry. Reviews appropriate regulations, including personnel and process flow, environmental and water testing, sterility testing, and incoming material and in-process testing. Other topics include the establishment of a master validation plan; description of facility, equipment, and process validations; and cleaning validations.	Inclusive
BUSN 6363	Social Impact of Business	GR	Explores how business practices affect society and how society affects business practices. Addresses topics such as social impact investing, sustainable supply chains, corporate social responsibility, social entrepreneurship, and global perspectives on corporate citizenship. Business and society have never been more intertwined. Executives are increasingly called upon to consider the larger societal impacts of their decisions and at the same time find themselves subject to demands from multiple societal stakeholders that include customers, suppliers, employees, governments, and interest groups, among others.	Focused

CAEP 6203	Understanding Culture and Diversity	GR	Works from a broad definition of culture and diversity. In addition to traditional culture and ethnic classifications, examines disability, poverty, and gender as culturally defining factors. Also explores the dynamics of culture in social systems, with the perspective of valuing differences in society and sociocultural forces impinging on culture from the ecological perspective.	Inclusive
CED 6120	Environmental Economics	GP	Analyzes efficient allocation of environmental resources and the impact on commerce and economic development. Includes additional topics such as the negative impact of economic activities on air and water with consideration of effective public policy. Explores current issues—such as global warming, habitat and species protection, etc.—and requires consideration of worldwide approaches and solutions to international problems.	Focused
CED 6130	Sustainable Economic Development	GP	Addresses the economics of balancing development and environmental impacts in the context of meeting current and future human needs while protecting the environment. Considers challenges and strategies in both developed and developing economies. Beginning with the market failure resulting from not including environmental impacts in cost calculations, this course explores the competing models of economic development, the environment, and population growth.	Focused
CHEM 1214	General Chemistry 2	UG	Continues CHEM 1211. Introduces the principles of chemical equilibrium, the rates and mechanisms of chemical reactions, and energy considerations in chemical transformations. Covers solutions, chemical kinetics, chemical equilibria, chemical thermodynamics, electrochemistry, and chemistry of the representative elements. Such contextual themes as energy resources, smog formation, and acid rain illustrate the principles discussed.	Inclusive
CIVE 2334	Environmental Engineering: Principles, Technology, and Sustainability	UG	Focuses on the protection and management of the environment and the engineering methods to control environmental quality problems. Topics include assessment of environmental quality, introduction to water and wastewater treatment technologies, air pollution control technologies, solid waste management, and global atmospheric change.	Focused
CIVE 2335	Environmental Engineering Chemistry	UG	Covers chemistry principles required for describing chemical processing of elements in natural systems, the distribution of pollutants in the environment, and chemical use in engineered treatment systems. Focuses on equilibrium thermodynamics and equilibria for acid-base, gas-water, precipitation-dissolution, metal complexation, oxidation-reduction, and sorption reactions. Discusses specific applications to pollutant reactions in surface waters, ground waters, soils, drinking water treatment, wastewater treatment, and the atmosphere.	Focused

CIVE 3430	Engineering Microbiology and Ecology	UG	Introduces the importance of microorganisms and plants to the natural and built environments and evidence-based decision making for complex systems constrained and defined by multiple metrics. Seeks to provide a fundamental understanding of microorganisms (metabolisms, growth, genetics, resource requirements, and niche) and their role in the global ecosystem (element cycling, energy flows, food webs). Examines the role of plants and microbes in both engineered and natural environmental systems and bidirectional interactions between the natural and the built environments. Framed around a series of case studies that highlight the challenges of and strategies for engineering in the earth system context, such as microbially mediated infrastructure corrosion; ecological effects of nutrient pollution; bioaccumulation; green infrastructure and remediation (constructed wetlands, bioremediation); and wastewater treatment.	Focused
CIVE 3435	Environmental Pollution Fate and Transport	UG	Provides a systematic approach to analyzing the fate and transport of pollutants within natural systems. Equilibrium modeling and reactive transport modeling are used to assess the predominant processes that control the movement and persistence of pollutants in water, soil, and air. Topics include mass transfer across multiple phases; physical, chemical, and biological transformations of substances; transport processes (diffusion, dispersion, advection, interphase mass transport); eutrophication of lakes; conventional pollutants in rivers and estuaries; groundwater contamination; and atmospheric deposition.	Focused
CIVE 4534	Water Treatment Systems Design	UG	Continues CIVE 2334. Concentrates on unit operations; unit processes; and related fundamental design of physical, chemical, and biological water and wastewater treatment systems, using both lectures and laboratory instruction. Topics include aeration systems, activated sludge, fixed-film biological treatment, gas transfer, reaction kinetics, reactor modeling, coagulation, flocculation, sedimentation, filtration, and subsurface disposal system design. Includes project component.	Inclusive
CIVE 4540	Resource Recovery and Waste Treatment Technologies Abroad	UG	Examines different aspects relative to municipal and industrial solid waste, with a special focus on material recovery. Covers chemical-physical characterization of waste, source reduction and toxicity, recycling and selection of different fractions, resource and energy recovery (e.g., composting, anaerobic digestion, combustion to energy), and analysis and preliminary design of treatment disposal options. Through design projects, offers students an opportunity to apply lessons learned to the U.S. context. Taught in a study-abroad format in a European nation.	Focused

CIVE 4554	Highway Design	UG	Concentrates on highway design including route selection, geometric design, foundation and pavement design, drainage design, and construction issues. Analyzes highway traffic including traffic flow fundamentals and capacity and level of service analysis for freeways and rural highways. Covers the environmental impact and public review process for highway construction. Includes project component.	Inclusive
CIVE 4566	Design for Sustainable Transportation: Netherlands	UG	Examines how the design of Dutch transportation infrastructure promotes travel by foot, bicycle, and public transportation as opposed to private automobile and how it promotes urban livability and traffic safety. Topics include bicycling infrastructure planning and design; Vision Zero traffic safety principles and design treatments for safe roads, intersections, and crossings; and high-quality transit service planning and design. Through design projects, offers students an opportunity to apply lessons learned to the U.S. context. Taught in a study-abroad format in the Netherlands.	Focused
CIVE 4765	Senior Design Project--Environmental	UG	Using teams, students design a civil engineering project that primarily involves the environmental subdiscipline. Design teams are advised by a faculty member and engineering practitioners. Lectures cover supplemental technical background specific to the project, as well as cross-disciplinary aspects of project development, value engineering, aesthetics, and constructability. Integrates project design with further development of student communications skills; students present the design to practicing engineers and interested parties such as community groups.	Focused
CIVE 5150	Climate and Atmospheric Change	UG | GR	Offers an in-depth view of the processes that drive change in Earth's climate system. Examines the modern climate system and how and why climate changes through time. Introduces the tools used to explore past climates and changes, and explores the long-term and short-term controls on the climate system. Also introduces the application of climate models to develop future climate projections. Offers students an opportunity to obtain hands-on experience analyzing and interpreting climate data and model output.	Focused
CIVE 5250	Organic Pollutants in the Environment	UG | GR	Introduces principles that govern the fate and transport of organic chemicals released to the environment. Topics include chemical structure and thermodynamic properties and how they predict physical processes that control the distribution of contaminants between the atmosphere, fresh and marine surface waters, groundwater, soils, sediments, and biota. Introduces models and methods for predicting fate and transport of organic contaminants within and between environmental media, including molecular diffusion, transport across boundaries, and box models. Explores concepts linking environmental chemistry with ecotoxicology, including bioaccumulation, food web models, and risk assessment. Uses case studies and real-world scenarios to illustrate concepts.	Inclusive

CIVE 5275	Life Cycle Assessment of Materials, Products, and Infrastructure	UG | GR	Covers the conceptual and mathematical basis of life cycle assessment (LCA), including engineering models of industrial energy use and emissions and environmental science models of fate and transport, exposure, and toxicology. LCA is a widely used systems-modeling method for quantifying the emissions and environmental/health implications of a product over its life cycle, from manufacturing to use to disposal. This guides design, technology decisions, and policy on topics ranging from consumer products to green buildings to large-scale energy technologies. Presents Monte Carlo simulation, structural path analysis, and model sensitivity analysis for the industrial network structure that underlies LCA modeling. Offers students an opportunity to receive hands-on training for open-source LCA software packages and then carry out independent group projects for real clients in industry and government.	Inclusive
CIVE 5280	Remote Sensing of the Environment	UG | GR	Introduces remote sensing techniques, including obtaining, visualizing, and analyzing satellite data. Examines physical processes, methods, and data products used in satellite remote sensing of the Earth's environment. Topics include active and passive remote sensing methods based on fundamentals of electromagnetic radiation, concepts used to develop data products from the remotely sensed measurements, and a suite of satellite data products to investigate current and past conditions of the Earth's terrestrial and ocean surfaces. Uses geographic information systems (GIS) and student-developed programs to view and interpret satellite data. Knowledge of GIS, R, and Python is preferred.	Inclusive
CIVE 5300	Environmental Sampling and Analysis	UG | GR	Introduces the theory, application, methodology, and instrumentation used in planning, sampling, and analyzing the environmental contaminants in air, water, and soils. Emphasizes instrument selection and quality control, including documentation, calibration, data analysis and interpretation, and sample management.	Inclusive
CIVE 5363	Climate Science, Engineering Adaptation, and Policy	UG | GR	Offers an evidence-based glimpse of what has been called a clear and present danger to mankind. Analyzes case studies from the magic of the butterfly effect in chaos theory to the deep challenges in physics, biogeochemistry, and data sciences. Covers topics from experimental design to satellite-based remote sensing, all the way to the design and operations of next-generation hydraulic infrastructures, transportation systems, smart grids, and communication networks, including the impacts on coastal or inland cities, the resilience to weather hazards, and the sustainability of water-energy-food resources. Includes policy issues and risk-informed trade-offs in renewable energy, environmental regulations, and emissions control. Graduate students are required to complete a mandatory class project.	Focused

CIVE 5373	Transportation Systems: Analysis and Planning	UG | GR	Discusses urban transportation planning and engineering for modes other than highway. Covers travel demand forecasting for both the short and long term including impact analysis methods, simple elasticity models, and the four-step model system of trip generation, trip distribution, modal split, and network assignment. Introduces transit service analysis and design. Other topics include capacity, service, and engineering design basics for different travel modes, such as bus, airport, rail, and bicycle. Considers the environmental impact, economic evaluation, and financial impact of different modes of transportation.	Inclusive
CIVE 5376	Traffic Engineering and Sustainable Urban Street Design	UG | GR	Covers street and intersection design for meeting societal needs related to traffic capacity, level of service, safety, walkability, bikeability, and the quality of public space. Intersection analysis and design topics include traffic flow theory and measurement; capacity; queuing and delay for both vehicles and pedestrians; and signal timing plan design, including design for pedestrian crossings. Street design topics include street functions; speed control; street and intersection layout; bicycling facilities, including bike lanes and separated bike paths; and pedestrian facilities, including sidewalks and crossings. Offers students an opportunity to practice with standard design manuals and intersection analysis software.	Inclusive
CIVE 5536	Hydrologic and Hydraulic Design	UG | GR	Introduces principles of engineering hydrology. Covers the hydrologic cycle, rainfall and flood frequency analysis, rainfall intensity-duration-frequency relationships, rainfall-runoff processes, hydrologic flood routing, and culvert/channel hydraulics. Utilizes these concepts in design applications of civil infrastructure such as stormwater detention basins, drainage pipes, culverts, etc. Uses hydrologic and hydraulic modeling software such as HEC-HMS and HEC-RAS. Includes project component.	Inclusive
CIVE 6566	Sustainable Urban Transportation: Netherlands	GR	Examines how Dutch communities and their transportation systems are planned and designed to promote ABC (all-but-car) transportation, traffic safety, and livability. Topics include design of urban bicycling infrastructure for the mainstream population; planning and service design for high-quality public transportation; urban planning in support of transit, bicycle, and foot transportation, including both suburban development and urban redevelopment; and Vision Zero/Systematic Safety policy and design for traffic safety and its application to urban areas. Taught in study-abroad format in the Netherlands.	Focused

CIVE 7110	Critical Infrastructure Resilience	GR	Introduces the concept of resilience by exploring engineering concepts and perspectives to offer students an opportunity to develop the ability to be prepared for and adapt to challenging situations and scenarios—e.g., globalization, climate change, security threats, and natural disasters—on critical infrastructures and key resources. Topics include application of tools for infrastructure modeling and risk assessment; identification of natural and man-made hazards; management of disaster risks and communications; resilience design; and future challenges, policy, and novel approaches to advance resilience. Explores application to real-life examples through group projects. Requires one semester of undergraduate statistics.	Focused
CIVE 7150	Data-Driven Decision Support for Civil and Environmental Engineering	GR	Presents supervised and unsupervised methods for dealing with large data sets and their application to support decision making in various civil and environmental engineering areas. Focuses on predictive models and methods for knowledge mining. Discusses applications from the transportation, urban mobility, and infrastructure maintenance domains. Topics include classification: linear regression, logistic regression, K-NN, and other classifiers; dimensionality reduction; clustering: K-means, hierarchical clustering, Gaussian mixture models, density-based clustering; model validation; and text mining. Demonstrates the applicability and underlying principles of the various methods through case studies with extensive data sets. Applications include classification of pavement distress images; mobility patterns; real-time transportation demand prediction; and text mining from reports. Background in probability and statistics and familiarity with Python/R recommended.	Inclusive
CIVE 7230	Legal Aspects of Civil Engineering	GR	Overviews the U.S. legal system and the theories necessary for the comprehension of business and contractual liabilities. Discusses various types of contracts, forms of business ownership, claims and disputes, and environmental law.	Inclusive
CIVE 7250	Environmental Chemistry	GR	Examines applications of chemistry to environmental engineering. Covers properties of water and pollutants, acid-base reactions, pH, alkalinity, equilibrium chemistry, chemical kinetics, chemical thermodynamics, coordination chemistry, precipitation-dissolution reactions, surface chemistry, adsorption-desorption, redox reactions, and organic chemistry as it relates to the environment. Includes relevant laboratory exercises such as colorimetry, gravimetric, and electrochemical methods; atomic absorption spectrophotometry; and ion and gas chromatography. Requires one semester of undergraduate chemistry.	Focused

CIVE 7251	Environmental Biological Processes	GR	Examines microbiology with emphasis on biological processes in environmental engineering applications. Topics include cell structure, morphology, cell nutrition and growth, energy transfer and utilization, aerobic and anaerobic microbial metabolism, biological wastewater process theory and modeling, biological nutrients removal, and disinfection of relevant microorganisms. Includes relevant laboratory exercises of treatment parameters used to monitor the biological processes, such as BOD, TOC, COD, gravimetric methods, and dissolved oxygen. Also covers enzyme kinetics and evaluation of kinetic coefficients for biotreatment. Requires one semester of undergraduate chemistry or one semester of undergraduate biology.	Inclusive
CIVE 7272	Air Quality Management	GR	Explores engineering theory and practice related to air resources management. Focuses on modeling dispersion and reactions for atmospheric pollutants and on analysis of systems for controlling gaseous and particulate emissions including dry collection, wet collection, absorption, and catalytic processes. Also addresses biological and chemical aspects of air pollution including toxicological issues, physiological effects of aerosols, analysis of organic and inorganic constituents of the atmosphere, and rationale for establishing air quality criteria and standards. Requires one semester of undergraduate chemistry.	Focused
CIVE 7301	Advanced Soil Mechanics	GR	Studies characterization of soils, soil mineralogy and chemistry, stresses within a soil mass, basic porous media flow principles, effective stress principle, compaction, drained and undrained stress-strain-strength concepts, and consolidation theory and its application. Requires one semester of undergraduate soil mechanics.	Inclusive
COMM 1412	Social Movement Communication	UG	Examines the communication strategies (including rhetorical messaging, public advocacy, grassroots organizing, fund-raising, and media outreach) of historical and contemporary social movement and activist organizations. Social movements considered may include immigration protests, AIDS activism, environmental advocacy, disability movements, racial justice, and feminism.	Inclusive
COMM 3304	Communication and Inclusion	UG	Explores the relationships between communication, social identity, and social inclusion. Focuses on how communication shapes perceptions and positions of social identity categories and how individuals and groups resist and transform identity and promote inclusion through communication. Examines communication and inclusion in the contexts of gender, race, sexual identity, social class, ability, and age. Course topics cover a range of theoretical and practical issues, including diversity in organizational settings and the social construction of identity. COMM 3304 and WMNS 3304 are cross-listed.	Inclusive

COMM 3500	Environmental Issues, Communication, and the Media	UG	Analyzes major debates over the environment, climate change, and related technologies such as nuclear energy, wind power, natural gas “fracking,” and food biotechnology. Studies the relevant scientific, political, and ethical dimensions of each case; the generalizable theories, frameworks, and methods that scholars use to analyze them; and the implications for effective public communication, policymaker engagement, and personal decision making. Offers students an opportunity to gain an integrated understanding of their different roles as professionals, advocates, and consumers and to improve their ability to find and use expert sources of information; assess competing media claims and narratives; write persuasive essays, analyses, and commentaries; and author evidence-based research papers.	Focused
CRIM 3120	Race, Crime, and Justice	UG	Provides students with an overview of the role and treatment of racial/ethnic minorities in the criminal justice system. Covers historical and theoretical frameworks for understanding the relationship between race, crime, and criminal justice. In so doing, students become familiar with trends and patterns in criminal offending by racial/ethnic minorities, as well as system response to such behavior.	Inclusive
CRIM 7710	Criminology and Public Policy 1	GR	Offers detailed coverage of theoretical criminology and its implications for public policy. Approaches the understanding of crime from an interdisciplinary perspective, focusing on recent theoretical developments. Studies the connections between systemic racism, inequalities, and crime and the role of bias in the development of the field and criminological theories. Emphasizes evaluating theory in light of empirical research, understanding the implications of theory and research for programs and policies of crime prevention and control, and evaluating current approaches to crime prevention and control.	Inclusive
CRIM 7711	Criminology and Public Policy 2	GR	Covers theoretical criminology and its implications for public policy. Approaches the understanding of crime from an interdisciplinary perspective, with emphasis on recent theoretical developments. Analyzes the connections between systemic racism, inequalities, and crime and the role of bias in the development of the field and criminological theories. Emphasizes evaluating theory in light of empirical research, understanding the implications of theory and research for programs and policies of crime prevention and control, and evaluating current approaches to crime prevention and control.	Inclusive
ECN 1100	Principles of Microeconomics	UC	Focuses on the development of the basic theory of supply and demand and market prices, as well as competition and monopoly and income distribution. Applies economic principles to selected problems such as poverty, pollution, and international trade.	Inclusive

ECON 1260	Contested Issues in the U.S. Economy	UG	Covers many of the contested economic issues that the United States faces as a nation--the size of government, the national debt, the war on drugs, national healthcare, taxation, and many more. An important social system in any society is the economic system--the allocation of scarce resources. In the large and complex economy of the United States, there is controversy over what goods and services are produced and how they are distributed. To understand the nature and causes of these issues requires a course where theory is a tool of analysis, not the focus. Economics is not value free. Attention is given to the role of ethics and how our moral values shape policy. Course topics vary from semester to semester.	Inclusive
PPUA 5264	Energy Democracy and Climate Resilience: Technology, Policy, and Social Change	UG | GR	Explores energy democracy, a growing social movement that promotes social changes that are possible as society transforms to a renewable-based society. Explores tensions associated with systemic vs. incremental change, centralized vs. decentralized systems, and infrastructural lock-in vs. flexibility. As the climate crisis becomes more disruptive, strengthening community resilience is essential to reduce human suffering. The transition away from fossil fuels toward more efficient, distributed renewable-based energy systems is an essential part of climate resilience. Analyzes social structures and policy processes that reinforce and perpetuate fossil fuel reliance, as well as processes for change in energy and climate systems. Semester-long team projects offer students an opportunity to collaborate with organizations advancing energy democracy and climate resilience.	Focused
ECON 1291	Development Economics	UG	Explores social and economic development around the world. Topics include income, poverty, inequality, human development, geography, growth, impact evaluation, health, education, financial markets, trade, and gender inequality. Analyzes four key elements of economic development: income, poverty, inequality, and human development. Offers students an opportunity to understand the determinants of economic growth. Focuses on major policy issues concerning health, education, credit, savings, gender differences, and globalization. Studies which interventions worked and which did not. Exposes students to readings and perspectives from several academic disciplines. Emphasizes one unifying methodological theme: the usefulness of empirical economic tools in assessing the arguments presented in debates about development.	Inclusive

ECON 1711	Economics of Sustainability	UG	Studies the significance of behavioral assumptions on economic outcomes and social norms, specifically as these relate to the perceived value of resources and the broader ecosystem. Explores the importance of economic concepts such as externalities and elasticity in relation to a market-driven economy, price, and consumption behavior. Through the use of elementary life cycle analysis, introduces both the definition and responsibilities of the rational agent as these relate to the establishment of sustainable outcomes. Offers students an opportunity to articulate the relationship between economic growth and climate change and reconcile the historical relationship between social values and sustainable outcomes.	Focused
ECON 3404	International Food Policy	UG	Offers an overview of the rationale for and types of food policies in developing countries. Uses a food systems approach to cover economic and political dimensions of food policy. Emphasizes food security, nutrition, poverty alleviation, and environmental issues. Discusses and analyzes the dynamics of change in the role of government; food value chains; and institutions and governance and their implications for local, regional, and global food systems.	Inclusive
ECON 3410	Labor Economics	UG	Emphasizes an economic analysis of the labor market, the labor force, and wages and earnings. Explores the differences that have existed and currently exist in the labor market with regard to race, ethnicity, and gender and the theories behind why they have existed and continue to exist. Covers supply, development, and efficient use of human resources; demand for labor by businesses and industries; wage inequality and its determinants; changing occupational and industrial structure; nature, causes, and incidence of unemployment; economic impact of unions; and influence of related labor-market institutions and relevant public policies including minimum wages, wage subsidies, and earned-income tax credits; health and safety regulations (OSHA); and antidiscrimination and affirmative action policies and programs.	Inclusive
ECON 3412	Women's Labor and the Economy	UG	Introduces economic models of dating, marriage, divorce, and childbearing with the goal of understanding the dramatic changes in family structure that have occurred over the past 60 years. Focuses on women's behavior in the labor force: the labor force participation and poverty and antipoverty programs (as the majority of America's poor are in families headed by women). Discusses theories, evidence, and policy remedies for wage differences between men and women with emphasis on policy topics such as pro-marriage and fertility initiatives, welfare reform, the earned income tax credit, affirmative action, the marriage tax, parental leave, and childcare support.	Inclusive
ECON 3420	Urban Economic Issues	UG	Studies urban growth and development, focusing on economic analysis of selected urban problems such as housing, poverty, transportation, education, health, crime, and the urban environment. Discusses public policies related to such problems.	Inclusive

ECON 3423	Environmental Economics	UG	Applies the tools of economics to environmental issues. Explores taxonomy of environmental effects; externalities; the commons problem; taxation, regulations, marketable permits, and property rights as a solution; measuring benefits of cleaner air and water, noise abatement, and recreational areas; global issues including tropical deforestation and acid rain; and the relevance of economics to the environmental debate.	Focused
ECON 3424	Law and Economics	UG	Focuses on how an understanding of the law is furthered by an awareness of the economic background against which it operates. Draws from economic principles, developing concepts such as efficiency, property rights, regulation, and income distribution. Uses mathematical notation to model the incentives created by various legal rules. Solutions to cost minimization and utility maximization problems reveal whether particular laws induce economic agents to act in a manner consistent with the social optimum. Applications of these ideas may include health and safety, the environment, the legal services and insurance industries, and zoning and land use, among others.	Inclusive
ECON 3425	Energy Economics	UG	Introduces theoretical and empirical perspectives on energy demand and energy supply. Energy is vital to modern economies. Emphasizes the role markets play in determining how to use energy and its sources and the scope for public policy to address market imperfections. Discusses oil, natural gas, coal, nuclear power, and renewable energy (such as hydro-, wind, and solar power). Covers the public policy issues around greenhouse gas emissions and energy security.	Inclusive
ECON 3711	Economics of Race	UG	Addresses economic issues related to race, including the persistence of racial discrimination. Studies the social construction of race and the use of this construction to legitimize exploitation. Covers the economic modeling of discrimination and segregation, as well as the effect of these societal attributes on economic outcomes, and the complexity of racial equity and equality specific to reparations. Course materials rely on published research, film, and other media.	Inclusive
ECON 5292	Gender and Development Economics	UG | GR	Examines topics at the intersection of women's empowerment and economic development from an economic perspective. Introduces potential explanations for the gender inequalities in the context of developing countries as well as the role of public policy in addressing such disparities. Studies microeconomics topics such as education gaps, fertility, family planning, HIV/AIDS, marriage dynamics and intrahousehold allocation of resources, female labor outcomes and migration, as well as conflict and domestic violence. Offers students an opportunity to apply basic economic theory associated with each topic as well as the research methodologies used in recent empirical papers. Students with an econometrics background have a better understanding of the empirical papers. Requires previous course work in microeconomic theory and in statistics.	Inclusive

ECON 7763	Labor Market Analysis	GR	Offers a theoretical and methodological survey of the field of neoclassical labor market analysis at the PhD level. Topics include the supply of labor from the perspective of the individual and the family, human capital, the demand for labor, market equilibrium, and the determination and distribution of wages and earnings. Other topics that may be included are unions, unemployment, labor mobility, alternative models of labor markets, labor productivity and growth, and income distribution and poverty.	Inclusive
EDU 6051	Introduction to Social Justice in Educational Settings	GP	Introduces the concepts of social justice, especially as they relate to educational access. Explores educational institutions as systems and questions how individuals can be agents of change in teaching, learning, curriculum, and administration. Offers students an opportunity to engage in reflective discussion and begin to explore their own feelings and experiences with social justice and development of cultural intelligence to prepare them to influence and advocate for systemic change.	Inclusive
EDU 7218	Leadership for Social Justice	GP	Examines how knowledge is produced in the context of historical and contemporary understandings of power. Focuses on change agency through ongoing self-examination, context analysis, and development of an action plan.	Inclusive
EEMB 1101	Foundations in Ecology and Evolutionary Biology	UG	Introduces students to the foundational principles of ecology and evolutionary biology. Merges traditional lectures on foundational topics in ecology and evolutionary biology (adaptation, mechanisms of evolution, community and ecosystems ecology) with explorations of local field sites and an introduction to field ecology. Students spend several weeks of the semester designing and implementing independent field research projects, through which they are exposed to the foundation of scientific inquiry, including hypothesis testing, collecting, managing, and analyzing data, and presenting their findings.	Inclusive
EEMB 2302	Ecology	UG	Offers students an opportunity to learn about the environmental and biological processes that control the distribution and abundance of species and controlling factors that operate on individuals, populations, and communities. The lecture and laboratory introduce a set of generalizable concepts that are of fundamental importance to plant and animal life on the land and in the sea and provide hands-on experiential learning that reinforce concepts covered in lecture. Offers students an opportunity to become proficient in the following: (a) understanding research results the primary literature; (b) conducting a research experiment; (c) interpreting the results of in-class research; (d) communicating results as manuscript.	Focused

EEMB 2400	Introduction to Evolution	UG	Introduces evolutionary thinking, including contemporary examples of evolution. To understand the evolution of Charles Darwin's "endless forms most beautiful," the course adopts an integrative approach that includes information from ecology, genetics, molecular biology, biogeography, and paleobiology. Considers mechanisms of evolutionary change--how does it happen? Examines adaptation, the process by which attributes of an organism change to enhance fitness and the evolutionary history of life on our planet--what was the first living thing, how does speciation occur, what have we learned about evolution of life in the distant past, and how did humans evolve. Includes student presentations and analysis of scientific literature.	Inclusive
EEMB 2700	Marine Biology	UG	Examines biological aspects of natural ocean ecosystems and the physical processes that regulate them. Covers distributions, abundances, and interactions of marine organisms; interactions between organisms and the transformation and flux of energy and matter in marine ecosystems; and aspects of physiology related to marine species distributions, abundances, and roles. Students generate, evaluate, discuss, and present data from primary research and apply their knowledge of the scientific method and biological concepts through the creation of a written grant proposal.	Focused
EEMB 3460	Conservation Biology	UG	Explores conservation biology, an interdisciplinary science that focuses on conservation of biological diversity at multiple levels. Emphasizes the causes and consequences of biodiversity loss and demonstrates how ecological and evolutionary principles are applied to conservation problems. Covers sustainability; climate change; introduced species; conservation of threatened and endangered species; and pollution, disease, and habitat restoration using examples from marine, aquatic, and terrestrial systems. Offers students an opportunity to read, discuss, evaluate, and present data from primary research through written assignments and oral debates and to apply this knowledge to conservation issues. Emphasizes critical thinking, problem solving, and recognizing multiple perspectives.	Focused
EEMB 3466	Disease Ecology	UG	Covers the fundamentals of disease ecology and evolution. Focuses on how disease can impact the physiology of organisms and how this can, in turn, alter communities and ecosystems. Topics include mathematical theory on host-pathogen interactions; empirical studies of human, wildlife, insect, and plant host populations; emerging infectious diseases; effects on host behavior; host-parasite coevolution; multihost and multipathogen systems; and anthropogenic effects on disease. Includes writing exercises, with a special emphasis on critical thinking and problem solving.	Inclusive

EEMB 3475	Wildlife Ecology	UG	Focuses on wildlife ecology and management, with an emphasis on terrestrial species. Introduces habitat use, behavior, wildlife conservation, parasites and pathogens, wildlife sampling, wildlife management, food and nutrition, population viability, and conservation genetics. Offers students an opportunity to engage in analyzing primary literature, collection, interpretation, and wildlife data and using basic mathematical models.	Focused
EEMB 3700	Desert Ecology	UG	Offers students an opportunity to obtain a basic understanding of fundamental ecological processes taking place in desert environments. Familiarizes students with how environmental and biological processes interact and influence the distribution and abundance of species in these arid biomes while recognizing the impact that human societies have on desert life and identifying sustainable solutions to ameliorate our ecological footprint. Introduces students to foundational concepts of fundamental importance to desert plant and animal life. Uses an ecological perspective to surround students with a rich social/cultural milieu including interactions with Israeli, Palestinian, and Bedouin communities.	Focused
EEMB 4001	Landscape and Restoration Ecology	UG	Topics include ecosystem processes, spatial patterns, disturbance, species distributions, invasive species, and habitat loss. Offers students an opportunity to participate in activities in which they look at and interpret spatial data. Course format includes group work, analyzing the scientific literature, and in-class activities.	Focused
EEMB 5303	Marine Biology Careers Seminar	UG | GR	Covers the information and tools needed to begin pursuing career opportunities in marine biology. Encourages students to explore a variety of career paths, construct résumés, contact potential employers for their internship and permanent positions. Presents invited speakers from state and federal agencies, and from private consulting firms, to talk about their work and career track.	Inclusive
EEMB 5504	Biology of Corals	UG | GR	Covers a variety of topics including basic coral biology, the coral/algal symbioses, the mechanisms of coral bleaching, coral microbiology and disease, coral calcification and ocean acidification, and coral speciation and hybridization. Supplements lectures with readings from the primary literature. Focuses on active areas of research and hands-on learning through lab and field activities.	Inclusive
EEMB 5506	Biology and Ecology of Fishes	UG | GR	Covers fundamental concepts in reef fish biology, ecology, and conservation. Additional lecture coursework includes analysis of both group and individual research projects conducted in lab. Presents recent or ongoing research projects by the instructor and guest lecturers. Discussions are based on papers from the scientific literature and relate topics about processes and patterns of fish recruitment, reproduction, dispersal, evolution, conservation, and management.	Inclusive

EEMB 5508	Marine Birds and Mammals	UG | GR	Studies principles of classification, anatomy, physiology, behavior, and evolution of seabirds and marine mammals. Also addresses conservation and protection of animals and essential habitat. Includes field trips to observe local species.	Inclusive
EEMB 5510	New England Marine Biomes	UG | GR	Investigates the major biomes in the northwest Atlantic, including their habitats—rocky intertidal, tidal estuaries, seagrass beds, kelp forest/rocky reef complex, soft sediments, salt marshes, and continental shelf. Studies the major chemical, physical, geological, and biological forces that shape each habitat. Investigates the ecological framework of each habitat, both in the field and in hands-on exercises. Examines the adaptations of plants, algae, and animals to their respective ecosystem. Offers students an opportunity to develop an appreciation for human-induced changes in each habitat and biome and the conservation and restoration efforts currently being used.	Focused
EEMB 5518	Ocean and Coastal Processes	UG | GR	Examines the coupling between physical and biological processes on coral reefs and adjacent habitats. Focuses on biophysical, oceanographic, and benthic-pelagic processes acting in coral reef and associated nearshore ecosystems. Specific topics include oceanographic forcing mechanisms, organismal biomechanics, hydrodynamics, and nutrient dynamics.	Inclusive
EEMB 5520	Tropical Marine Ecology	UG | GR	Highlights and explores the ecological characteristics and current threats facing four tropical ecosystems—coral reefs, seagrass beds, mangrove forests, and tropical lowland rain forests. Explores the connectivity between these ecosystems and the services each provides. Examines how these ecosystems have changed under past threats and are projected to change in future conditions. Includes formal lectures, informal lectures provided in the field, field demonstrations, and interpretive hikes.	Focused
PPUA 6101	Environmental Science and Policy Seminar 1	GR	Offers an integrated introduction to the intersection between environmental science and policy. Organized around the two central themes of sustainability transitions and climate resilience. Connects theoretical frameworks, including sociotechnical systems and coupled socioecological systems, to key science-policy issues related to transitioning to a more sustainable future and responding to a changing climate.	Focused

EEMB 5522	Experimental Design Marine Ecology	UG | GR	Includes introduction to and application of observational methods in three local marine habitats, experimental design, statistical analysis, R statistical computing and graphics software, and principles of marine ecology. Combines lecture, hand-on research experience, and computer laboratory and includes reading and analyzing the scientific literature and developing research projects. At the end of the semester, students are expected to demonstrate an integrative mastery of course topics by writing a scientific manuscript about a class experiment. Seeks to prepare students for practicing ecology in new environments and to provide students with the foundational knowledge necessary for pursuing more complex concepts in experimental design, statistical analysis, and marine ecology.	Inclusive
EEMB 5525	Advanced Field Methods in Marine Ecology	UG | GR	Explores the methods used to build and complete scientific studies in marine ecology from observation to data analysis and interpretation within the context of the northwest Atlantic Ocean. Offers students an opportunity to build quantitative skills by understanding how and when to apply different statistical methods to a range of ecological datasets. Studies how to appropriately interpret results and effectively communicate the interpretation to any audience. Applies these skills to additional study systems outside the marine environment of the northwest Atlantic.	Inclusive
EEMB 5538	Conservation and Restoration of Marine Systems	UG | GR	Designed to foster an understanding of conservation and restoration strategies in the nearshore marine system using a real-world case study approach. Students collect and analyze historical and newly collected data and use this to inform a conservation and restoration plan within the context of local, state, and federal laws. Uses real-world examples (such as aquaculture, seagrass restoration, and shoreline hardening) to build ecological goals. Seeks to build understanding and appreciation of the input of all stakeholders, including that of marginalized groups. Offers students an opportunity to produce a high-level and annotated deliverable that could serve as a template for real-world use.	Focused
EEMB 5540	Changing Global Oceans	UG | GR	Investigates the major drivers to short-, medium-, and long-term changes in the world's oceans. Compares the role of natural and human-induced changes in ocean systems. Key areas focus on the role of nonhuman animals in modifying and mitigating oceanic and atmospheric change. Explores the linkages among oceans and atmosphere through examples in the Pacific Northwest and worldwide.	Focused

EEMB 5542	Marine Spatial Planning	UG | GR	Investigates issues of marine and coastal spatial planning (MCSP) that include offshore wind power siting, fisheries and aquaculture management, natural resource extraction, marine mammal conservation, and/or living shoreline protection and mitigation. Covers the spatial planning process from question to deliverable strategy, including assessment of stakeholder needs and potential ecosystem impacts. Offers students an opportunity to acquire and assess data, apply appropriate statistical tools, and develop spatial maps using geographic information systems (GIS) and other software. Also covers how to synthesize the planning process and develop and evaluate recommendations.	Focused
EEMB 5546	Sustainability of the Land-Sea Interface	UG | GR	Explores the current issues facing management and conservation of the land-sea interface, also known as the coastal transition zone (CTZ). Evaluates the mitigation, conservation, and restoration tools that are applied to human use of the land-sea interface. Observes these tools during site visits and discusses strategies with experts in sustainability of these habitats. Synthesizes the scientific literature on CTZ tools in the northwest Atlantic and other regions with pressing sustainable land-sea use issues. Offers students an opportunity to develop skills in prioritizing and advocating for particular conservation strategies and to practice science communication skills to effectively reach a broad audience.	Focused
EEMB 7103	Seminar in Sustainability Sciences	GR	Explores key papers that have shaped modern theory, methodologies, and practices of sustainability science. Sustainability science hinges on integrating social and ecological sciences to assess the sustainability of human-environment interactions. From the social science dimension, many past studies focused on understanding how values, beliefs, and social norms shape human behavior. From an ecological perspective, much work focused on the influence of various institutional arrangements on resource and environmental sustainability. Importantly, a coupled natural-human or social-ecological systems (SES) perspective focuses on the inherently dynamic nature of these systems and interactions.	Focused
EEMB 7104	Seminar in Geosciences	GR	Exposes graduate students pursuing a PhD in marine and environmental sciences to classical and recent high-impact papers in the fields of recent and deep earth history, landform evolution, microbes and their role in global biogeochemical cycling, nutrient stoichiometry, the global carbon cycle, geochemical proxies, evolution of ocean chemistry, oceanic acidification, the role of organisms in sediment and rock production, and geochemical paleoproxies. Examines applications of the above disciplines to mitigating the impacts of anthropogenic impacts on the Earth system. This is a guided readings course.	Focused

ENGL 2620	What Is Nature?	UG	Focuses on a variety of texts (imaginative literature, memoir, scientific writing, creative nonfiction, and popular journalism) that take nature, ecology, and the environment as their subject. Examines paintings, photography, and other visual representations (such as computer simulations) of the natural world. Taught in Boston or in the United Kingdom.	Focused
ENGL 3619	Emerson and Thoreau	UG	Focuses on Ralph Waldo Emerson and Henry David Thoreau, two major American Romantic writers whose ideas about the individual, spirituality, nature, and politics have had a wide-ranging impact on American culture. Readings include essays, poetry, and journals by these two Massachusetts-based authors.	Inclusive
ENGR 5670	Sustainable Energy: Materials, Conversion, Storage, and Usage	UG | GR	Examines, in this interdisciplinary course, modern energy usage, consequences, and options to support sustainable energy development from a variety of fundamental and applied perspectives. Emphasizes both (1) physical and chemical processes in materials for the conversion of energy and (2) how to design a system with renewable energy for applications such as electricity generation and transmission. Takes a systems analysis point of view. Topics may include energy conservation; fossil fuels; and energy conversion methods for solar, geothermal, wind, hydro, bioenergy, electrochemical, and similar methods.	Focused
PPUA 5270	Food Systems and Public Policy	UG | GR	Explores the public policy dimensions of the contemporary food system. Utilizes scholarly readings and case studies to assess the role of governing institutions and political actors in shaping the food supply; the effects of energy, transportation, and urban policies on food access; the ecological dimensions of food production; impacts of international trade regimes on global food trade; and the potential impacts of climate change on food security. Compares the United States and other nations and explores alternatives to the dominant food system. Seeks to engage students in applied policy analysis of specific food system issues.	Focused
ENGW 3303	Advanced Writing in the Environmental Professions	UG	Provides writing instruction for students in fields related to environmental studies. Students develop an in-depth analytic or recommendation report about a complex environmental concern related to their majors and/or their co-op or other personal or professional experiences. In a workshop setting, students evaluate scholarly and popular sources, practice a variety of professional and academic forms of writing and communication, and develop expertise in audience analysis, critical research, peer review, and revision. Writing is guided in stages from initial topic exploration and a formal proposal through drafts and progress reports to a final polished report, presented in a bound portfolio with a cover letter, an abstract, and other writing samples.	Focused

ENSY 5000	Fundamentals of Energy System Integration	UG | GR	Presents fundamental issues of successfully integrating and implementing energy systems. Exposes students to combined heat and power strategies (cogeneration system), strategies of incorporating renewable with nonrenewable energy sources, thermoeconomics, and carbon sequesteration techniques. Includes energy, exergy, and thermoeconomic cost factors in the presented case studies. Explores the effects of public policy, regulations, and financial operations on selecting energy technology. Students are given case studies to illustrate the complexity of implementing energy systems and are expected to complete a major project involving proposing an energy system. Emphasizes that successful implementation of energy systems requires both a technical and an economic solution. Requires calculus-based physics and chemistry.	Inclusive
ENSY 5100	Hydropower	UG | GR	Covers fundamentals of hydropowered development projects and their relevant design parameters. Emphasizes harnessing the hydro-energy potentials of both natural and man-made reservoirs. Reviews hydro- and electromechanical equipment and civil structure. Addresses selection procedure and design parameters of the equipment and structure.	Inclusive
ENSY 5200	Energy Storage Systems	UG | GR	Explores the various energy storage technologies, their working, and their practical applications. Focuses on the state-of-the-art review of current and most recent technologies. Offers students an opportunity to explore various innovations in the field of energy storage that can be helpful for fulfilling our current energy storage needs. Covers many different energy storage systems such as mechanical, chemical, electrochemical, thermal, thermochemical, etc.	Inclusive
ENSY 5400	Power Plant Design and Analysis	UG | GR	Reviews the fundamental laws of thermodynamics and balance equations for mass, energy, exergy, and entropy. Studies thermochemistry, chemical equilibrium, fuels and combustion, steam power plant cycle, gas turbine systems, thermo-economics, nuclear power plants, and energy recovery.	Inclusive
ENSY 5585	Wind Energy Systems	GR	Introduces wind energy and its applications. Integrates aerodynamics of wind turbine design with the structures needed to support them. Covers types of wind turbines, their components, and related analyses; airfoil aerodynamics; concepts of lift, drag, pitching moment, circulation, angle of attack, and stall; laminar and turbulent boundary layers and separation concepts; fundamental conservation equations; Bernoulli's, Euler's, and Navier-Stokes equations and their applications; Betz limit; computational fluid dynamics and its application for flow over typical airfoils; compressibility and elements of one-dimensional gas dynamics; wind resource; wind climatology and meteorological data; turbine tower and structural engineering aspects of turbines; vibration problems; aeroelastic phenomena in turbines; small wind turbines and vertical axis wind turbines; and introduces environmental and societal impacts and economic aspects.	Inclusive

ENTR 2206	Global Social Enterprise	UG	Designed to provide students with an in-depth exposure to entrepreneurship in the social sector, a rapidly growing segment of the global economy. Uses the case method to expose students to leading entrepreneurs who have developed and implemented business models to solve social problems such as extreme poverty, disease, illiteracy, and economic and social dislocation. Focuses on uniquely creative and driven people who have dedicated their lives to making a difference in the lives of others through values-based entrepreneurship.	Inclusive
ENTR 2414	Social Responsibility of Business in an Age of Inequality	UG	Studies how businesses can be agents for social good, both locally and around the world. In an era of growing social and economic inequality both in the United States and globally, many "enlightened" businesses are reconsidering their roles in creating opportunity for disadvantaged or marginalized people and communities. Focuses on businesses that have the resources to invest in innovative social responsibility programs that address the impact of rising social and economic inequality. Considers the tension between the single-minded notion of maximizing profit for investors and serving a broader stakeholder community. The role of entrepreneurship and entrepreneurial thinking plays a key role in student learning. This is an integrative course that includes areas such as business policy, governance, strategy, and decision making.	Inclusive
ENTR 3520	Impact Investing and Social Finance	UG	Explores impact investing, a transformative way to work with money to achieve a more inclusive and sustainable economy. Large investors are entering the world of impact investing, a rapidly emerging space where social and ecological effects of finance are championed over maximizing shareholder value. New investment vehicles such as social impact bonds and Web exchanges are changing the role of financing institutions to better serve the needs of low-income populations around the world. Applies interdisciplinary frameworks, tools, and cases, with hands-on teamwork and guest speakers, to critically examine the field. Offers students an opportunity to learn to develop and test concepts that integrate social responsibility, sustainability, and mutual accountability into current financial and economic systems while expanding social capital markets.	Focused

ENTR 4506	Seminar in Social Innovation and Entrepreneurship	UG	Focuses on a single developing region. Offers an opportunity to analyze the role of socially-driven entrepreneurship or "social impact enterprises" (SIEs) in alleviating poverty and its symptoms (for example, disease, illiteracy and chronic unemployment) in that country. Students have an opportunity to study the history, politics, and development of the country, with an emphasis on the role that private-sector initiatives have played and hope to play in addressing widespread poverty and with a focus on the failures and successes in economic and business development, economic growth, and poverty alleviation. Offers students an opportunity to develop a plan for a micro-investment strategy focused on these and/or similar businesses and organizations having a significant social impact in a developing country.	Focused
ENTR 6214	Social Enterprise	GR	Designed to provide students with an in-depth exposure to entrepreneurship in the social sector, a rapidly growing segment of the global economy. Uses the case method to expose students to leading entrepreneurs who have developed and implemented business models to solve social problems such as extreme poverty, disease, illiteracy, and economic and social dislocation. Focuses on uniquely creative and driven people who have dedicated their lives to making a difference in the lives of others through values-based entrepreneurship.	Inclusive
ENVR 1101	Environmental Science	UG	Focuses on the complex array of topics that collectively form the discipline of environmental science. Emphasizes the problems facing today's natural, human-managed, and coupled human/natural ecosystems and the solutions to those problems. Studies the human dimensions of environmental science, including culture, politics, worldviews, ethics, and economics, particularly within the context of global climate change. Offers students an opportunity to learn to analyze data as a means of exploring relationships among societal and ecological drivers affecting economic, ecological, and socioeconomic stability; to learn how the scientific method is used to separate fact and data from opinion; and to apply these methods to explore the causes and solutions to global climate change.	Focused
ENVR 1110	Global Climate Change	UG	Analyzes Earth's modern climate system and natural climate change over Earth's 4.5-billion-year history. Examines ongoing and future climate change. Includes expected impacts of the predicted climate changes as well as mitigation and adaptation options.	Focused
ENVR 1200	Dynamic Earth	UG	Offers a systematic study of the materials and systems comprising the earth. Emphasizes the processes that form, transport, alter, and destroy rocks, as well as the nature and development of landscape. Plate tectonics theory is introduced as a guiding paradigm in geology.	Inclusive

ENVR 1202	History of Earth and Life	UG	Traces biological and environmental development of the earth over the past 4.6 billion years using evidence preserved in the rock record. A primary goal is to understand how geoscientists interpret earth history by learning how to test hypotheses and develop explanations for events that occurred far in the geologic past. Examination of major earth systems, the biosphere, lithosphere, atmosphere and hydrosphere, reveals how they interact to control the origin of earth, the origin and evolution of life, the causes and effects of extinction, plate tectonics and mountain building, and climate change over earth history.	Inclusive
ENVR 1203	Interpreting Earth History	UG	Focuses on students using sedimentary rocks, fossils, and geologic maps and stratigraphic sections to record and to interpret events in earth history.	Inclusive
ENVR 1400	Foundations in Environmental and Sustainability Sciences	UG	Presents a series of lectures and case studies focused on the problems facing today's natural, human-managed, and coupled human/natural ecosystems. Integrates the underlying science with the human dimensions of environmental challenges. These include an understanding of the basic chemistry, physics, and ecology of environmental change and how this science is informed and altered by culture, politics, worldviews, ethics, and economics. Examines quantitative techniques to analyze data as a means of exploring relationships among societal and ecological drivers affecting economic, ecological, and socioeconomic stability. Studies how the scientific method is used to separate facts and data from opinion and applies these methods to explore the causes and solutions to global climate change and other environmental challenges.	Focused
ENVR 1500	Introduction to Environmental, Social, and Biological Data	UG	Introduces the fundamental concepts in the fields of environmental, social, and biological science. Studies the expertise needed in each discipline to organize and manage data in sustainability science. The first half of the course covers data collection relevant to pressing issues in sustainability, database organization, coding, and finding errors in data sets. The second half of the course covers basic principles in the statistical analysis of data sets used in conservation and sustainability, including simulating data, machine learning, and errors in analysis. Offers hands-on experience through students' own data collection projects. Appropriate for students interested in biology, marine biology, environmental science, and ecology and evolutionary biology. Designed to prepare students for co-ops and upper-level classes in these fields.	Focused
ENVR 2200	Earth's Changing Cycles	UG	Introduces the biological, chemical, and physical interactions that shape our environment and how industrial emission of gases and black carbon, the use of fertilizers and plastics, and the expansion of cities are altering Earth's systems at rates unprecedented in the recent geological record. Offers students an opportunity to build a fundamental understanding of major issues in environmental science, including climate change, eutrophication, loss of biodiversity, and urbanization. Considers how we might build a more sustainable future.	Focused

ENVR 2310	Earth Materials	UG	Describes the physical and chemical characteristics of common rock-forming minerals and geologic processes that form rock and soils in the igneous, sedimentary, and metamorphic environments. Focuses on commonly encountered minerals, soil, and rock types and how these are used to interpret past and present earth processes. This is a writing-intensive course with a required term paper.	Inclusive
ENVR 2340	Earth Landforms and Processes	UG	Focuses on the origin and evolution of landscape features by processes operating at or near the earth's surface. Exercises introduce interpretation of air photos, topographic maps, remotely sensed data, and digital elevation models.	Inclusive
ENVR 2401	Food Justice and Community Development	UG	Uncovers and examines the key dilemmas of the food system in the United States today using readings, media, discussion, service-learning, and field trips. Working from the foundations of environmental justice and community development, covers production, access, distribution, and key stakeholders from producers to retailers, workers, and consumers. Considers what justice-related issues face stakeholders within the food system in the United States; what policies have most impacted the workforce in the American food system; and what the opportunities and leverage points are for change in improving justice outcomes in this system. ENVR 2401 and HUSV 2401 are cross-listed.	Focused
ENVR 2500	Biostatistics	UG	Offers an overview of traditional and modern statistical methods used to analyze biological data using the free and open-source R programming environment. Lectures describe core statistical approaches and discuss their suitability for understanding patterns that arise at different levels of biological organization, from cellular processes to whole ecosystems. Supervised lab sessions offer students an opportunity to develop the R programming skills required to analyze the complex datasets that often emerge when addressing cutting-edge questions in biology. Topics include basic probability and sampling theory, experimental design, null hypothesis significance testing, t-tests and ANOVA, correlation and regression, likelihood, model selection, and information theory.	Inclusive
ENVR 2515	Sustainable Development	UG	Focuses on the principles and practice of sustainable development, both as a way of looking at the interconnected world and an overarching framework for promoting economic development, social inclusion, and environmental stewardship. Students will study decades of local and global efforts aimed at developing economies, eradicating hunger and disease, and restoring and sustaining ecosystems for a large, and growing, population living on an increasingly altered planet and facing a changing climate. Along with lectures and discussions on core concepts, students will critically dissect the toughest questions and challenges of sustainable development through an online class blog and semester-long group projects.	Focused

ENVR 3125	Global Oceanic Change	UG	Explores major changes in physical, biological, and chemical properties of the ocean over geological and human timescales. Includes origin and early evolution of the oceans; sea-level change; global warming; ocean acidification; the role of plate tectonics in driving long-term oceanic change; the role of atmospheric carbon dioxide in driving short-term oceanic change; tipping points in the oceans; snowball earth theory; marine pollution; oil exploration; and social, economic, and political implications of global oceanic change. Themes include differentiating drivers of change across multiple temporal and spatial scales; evaluating change from different and sometimes conflicting perspectives (social, economic, political, environmental); differentiating local and global change; and establishing linkages between physical, chemical, and biological processes in the ocean. Requires prior completion of one laboratory science course or permission of instructor.	Focused
ENVR 3150	Food Security and Sustainability	UG	Discusses the science of sustainable agriculture, fisheries, and aquaculture. Examines the issues related to nutrition and hunger, food safety, and food production in the face of a changing climate with a scientific lens. Using the FAO Global Food Security and Strategy document and other peer-reviewed literature, compares the food issues in the United States with those in the developing world, including sub-Saharan Africa and Southeast Asia. Explores the many issues related to food production and environmental sustainability--including fertilizer use, GMOs, and pollution--and local examples of sustainable food production. Discusses the ways in which we can potentially remedy many of the issues involved in providing food for more than 7 billion people worldwide.	Focused
ENVR 3200	Water Resources	UG	Offers students who wish to work in the area of water resources an opportunity to understand the issues related to water's availability and behavior at the Earth's surface. Topics covered include (1) the hydrologic cycle, including global and regional patterns of water movement; (2) characteristics of surface and groundwater systems, including the linkage between streams, rivers, lakes, wetlands, groundwater, and the sea; (3) water management issues and regulations that have been enacted to control the use of water as a resource; (4) water quality measures for surface water and groundwater; and (5) examples of water use conflicts and emerging water issues. Case studies include examples from California, New England, New York, the southwestern United States, China, Africa, and the Middle East.	Focused

ENVR 3300	Geographic Information Systems	UG	Studies how to use a geographic information system (GIS). Explores the practical application of GIS to support scientific and social inquiry, analysis, and decision making. Topics include spatial data collection; data accuracy and uncertainty; cartographic principles and data visualization; geographic analysis; and legal, economic, and ethical issues associated with using GIS. Investigates case studies from geology, environmental science, urban planning, architecture, social studies, and engineering. Provides extensive hands-on experience with a leading commercial GIS software package. Offers students an opportunity to conceive their own research problem that can be addressed using GIS and reach conclusions that are summarized in a professional report. Students who do not meet course prerequisites may seek permission of instructor.	Inclusive
ENVR 3415	Environmental Pollution: Fate and Transport	UG	Offers a systematic approach to analyzing the fate and transport of pollutants within natural systems. Uses equilibrium modeling and reactive transport modeling to assess the predominant processes that control the movement and persistence of pollutants in water, soil, and air. Topics include mass transfer across multiple phases; physical, chemical, and biological transformations of substances; transport processes (diffusion, dispersion, advection, interphase mass transport); eutrophication of lakes; conventional pollutants in rivers and estuaries; groundwater contamination; and atmospheric deposition.	Focused
ENVR 3418	Geophysics	UG	Studies the basic techniques of reflection and refraction seismology and earthquake analysis; gravity and magnetic surveying methods; radioactive decay principles and Earth's heat flow; and how information from these methods are used to interpret the nature and age of the Earth's surface and interior. Emphasizes near-surface exploration, data collection methods, data analysis, and using data to constrain mathematical models of the subsurface distribution of geologic units.	Inclusive
ENVR 3701	Energy in the Desert Ecosystem	UG	Incorporates lectures, seminars, and visits throughout several institutions/organizations within the Arava Desert (Israel) to identify the various ways in which energy sustains life in this arid and harsh region of the world. Covers both the biological needs for energy acquisition and conservation of desert organisms, as well as technological advances in the utilization and storage of energy such as wind, solar, biomass, fuel cells, and hybrid systems, all within the context of living and exploiting the desert environment. Touches upon the environmental consequences of energy conversion and how renewable energy can reduce air pollution and global climate change.	Focused

ENVR 5190	Soil Science	UG | GR	Provides a description and evaluation of the physical, chemical, and biological properties of soils. Includes soil formation, soil types, and processes that occur in soil including the importance of these processes for the soil productivity and management of soil. Also covers sources, reactions, transports, and fates of chemical species in soils and associated water and air environments, as well as the chemical behavior of elements and compounds and the phenomena affecting natural and anthropogenic materials in soils.	Inclusive
ENVR 5201	Geologic Field Seminar	UG | GR	Studies aspects of geology/environmental science associated with a particular field setting, in the classroom, followed by an intensive field investigation. Examples include carbonate petrology and reef ecology, then field studies in the Bahamas; glacial geology and volcanology, followed by field studies in Iceland; or stratigraphy of the U.S. Southwest, with field studies in the Grand Canyon. Focuses on using field observations and field data to interpret modern and ancient geologic processes. May be repeated without limit.	Inclusive
ENVR 5202	Environmental Science Field Seminar Abroad	UG | GR	Offers an intensive environmental science field study experience associated with a particular off-campus geographic setting, such as Iceland, Newfoundland, Bahamas, etc. Offers students an opportunity to learn the principles of field study, to learn to recognize and record significant data, and to reach conclusions about a range of field-based problems being studied. May be repeated without limit.	Focused
ENVR 5210	Environmental Planning	UG | GR	Examines aspects of surface runoff from geomorphic and hydrologic perspectives. Develops methods for description and calculation of major river and drainage basin processes and applies the results to the planning process. Examines human modification of these systems--including urbanization, dams, and channelization--and applies this information to an understanding of regulatory processes. This is a writing-intensive course.	Focused
ENVR 5220	Ecosystem-Based Management	UG | GR	Introduces the principles and practice of ecosystem-based management. Covers how ecosystem-based management draws from social, economic, and ecological principles, as well as how these principles are fundamentally coupled. Begins by covering the evolution of resource management, from single-species to ecosystem-based approaches, including the strengths and challenges of each approach. Focuses on how ecosystem-based management has been applied to terrestrial, freshwater aquatic, and marine ecosystems, including challenges and successes of adopting this approach. Draws from a wide range of examples, including marine protected areas, terrestrial and marine spatial planning, and habitat restoration. Designed for upper-intermediate or advanced undergraduates and graduate students in environmental science and related fields.	Focused

ENVR 5242	Ancient Marine Life	UG | GR	Begins with a survey of major events, processes, and important invertebrate phyla preserved in the fossil record. This knowledge of paleontology is then utilized to evaluate evolutionary principles and the nature of function and adaptation in the history of life. Organization of populations into paleocommunities and their relationships to changes in environments through time permit the assessment and evaluation of paleoecology in Earth history.	Inclusive
ENVR 5350	Sustainable Energy and Climate Solutions	UG | GR	Examines the role of sustainable energy on emissions from energy production and the resulting impacts on climate changes. Introduces current observations, predictions of future climate change, and the resulting impacts on ecological and human systems. Assesses past and current sources of U.S. energy-related and non-energy-related sources of greenhouse gases. Reviews sustainable energy alternatives and emission reduction strategies with a focus on comparing moderate and deep decarbonization strategies and the overall goal of reaching zero net emissions.	Focused
ENVR 5450	Applied Social-Ecological Systems Modeling	UG | GR	Covers the key frameworks, theories, and approaches for conducting social-ecological systems (SES) research. Involves topic and paper discussions focused on developing detailed knowledge and agility at describing the theoretical and applied foundations of interdisciplinary SES research. Includes semester-long projects to develop hands-on skills for conducting robust, methodologically sound studies of social-ecological systems. Particularly emphasizes participatory modeling as a tool for both scientific inquiry and stakeholder engagement. Students complete a participatory modeling project, including all steps of the scientific process, and have an opportunity to gain experience with research design, data collection, analysis, interpretation, and communication.	Inclusive
ENVR 5563	Advanced Spatial Analysis	UG | GR	Offers an in-depth evaluation of theoretical, mathematical, and computational foundations of geographic information systems (GIS). Examines advanced concepts and techniques in GIS analysis and spatial statistics methods. Topics include spatial information theory, database theory, mathematical models of spatial objects, and GIS-based representation.	Inclusive
ENVR 5600	Coastal Processes, Adaptation, and Resilience	UG | GR	Introduces the forcing and response of the built and natural coastal environment, including hurricanes and extratropical storms, wind waves, astronomical tides, storm surges, currents, sediment transport, and morphological changes. Seeks to provide an overview of the physical processes and interaction with human activity at the water and land interface, including anthropogenic, natural, and nature-based features for coastal defense. Uses examples and case studies of climate adaptation plans to illustrate alternatives to increase coastal resiliency. Emphasizes the challenges to developing resilience solutions in urban coastal areas, where population growth coupled with sea-level rise and climate extremes exacerbate exposure of people and infrastructure to flood hazards.	Focused

ENVR 6102	Environmental Science and Policy Seminar 2	GR	Critically explores fundamental and modern theory, methodologies, and practices for conserving and managing coupled social-ecological systems (SES). Focuses on science and policy of environment management through the lens of coupled SES. Historically, the majority of studies focused on human-environment interactions have typically involved measuring and describing the negative impacts of human populations and development on natural ecosystems. More recently, however, environmental science and practice have experienced a paradigm shift to where now humans and the natural environment are recognized as tightly coupled systems. From an SES perspective, humans continue to shape the structure and function of ecosystems through both stressors and stewardship. However, a key advancement is the recognition that people and their behavior are directly influenced by structure, function, and services of ecosystems.	Focused
ENVR 6150	Food Security and Sustainability	GR	Explores the science of sustainable food production around the world and examines the issues related to nutrition and hunger, food safety, and food production. Discusses issues such as population growth, climate change, and sustainability, which are presented as thematic topics. Also discusses issues such as soil health, genetically modified (and engineered) foods, water use, governmental food guidelines, and human health. Pulls focus on the thematic topics from scientific literature but also includes additional sources of information, such as gray literature, media coverage, documentaries, and popular nonfiction. Explores local examples of sustainable agriculture, including incentives in food security and sustainability in New England.	Focused
ESC 1150	The Atmosphere	UC	Examines Earth's atmospheric structure and applies laws of physics to describe and explain broad climate and circulation patterns and local weather events that maintain or can disrupt ecosystems as heat energy and water move through Earth's spheres.	Inclusive
ESC 1200	The Hydrosphere: Oceanography, Ground and Surface Water	UC	Examines the physical structure, biological provinces, and varying chemistries of Earth's ocean and other water resources. Topics range from El Nino/Southern Oscillation to lake eutrophication.	Inclusive

FINA 2720	Sustainability in the Business Environment	UG	Examines a variety of environmental problems, including global warming, use and disposal of toxic substances, and depletion of natural resources such as water and petroleum. Many of these problems arise because these are resources that are available to all and so their overuse is an externality that is not included in manufacturing costs. Businesses have been involved in both identifying sustainability issues in their individual organizations and providing a variety of innovative solutions. Uses a combination of readings and case analyses to assesses how both government regulations--such as taxes, subsidies, building codes, prohibitions of use--and business solutions--including zero emissions, green design, producer take-back, life cycle assessment, and corporate environmental reporting--address these problems.	Focused
GAME 2755	Games and Social Justice	UG	Analyzes games from a social justice perspective, encouraging students to consider issues of social stereotyping, normalization, exclusion, and inequity as they apply to games from all sectors of the industry. Discusses and analyzes games using a variety of social theories from a diverse set of fields, including gender studies, critical race theory, and LGBTQ studies. Provides a studio setting in which students have an opportunity to engage in critical making of playable experiences that are based upon and deeply integrate social justice theories in their design.	Inclusive
PPUA 5268	International Environmental Policy	UG | GR	Explores key environmental challenges and policy solutions from an international perspective. Emphasizes the complexity of human-natural systems for policy design, provides a history of international environmental politics, and discusses contemporary policy issues. Presents key paradigms for understanding environmental challenges and the analytical tools to look critically at important debates, understand the role of different actors, identify equity and justice considerations, and assess policy options from multiple perspectives. Focuses on global environmental governance and sustainable development diplomacy, natural resource management, and climate change policy. Addresses the role of science in policymaking, tensions between environment and development, the scale and complexity of international environmental governance, and equity and justice.	Focused

GE 3300	Energy Systems: Science, Technology, and Sustainability	UG	Offers students an opportunity to obtain a sound scientific, technological, and economic understanding of our modern energy system and the challenge of energy sustainability. Covers principles of energy, work, and thermodynamics; technologies from supply and demand side, including extraction of primary energy, conversion into fuels and electricity, important energy end-uses, and energy losses; fossil, nuclear power plants, and renewable energy technologies (wind, solar, wave, hydro, geothermal, biofuels); transmission and distribution for electricity and fossil fuels; energy demand by buildings, transportation, and industry, emphasizing efficient technologies; sustainability concepts, including net energy/exergy analysis and life-cycle assessment, energy-related emissions, decentralized generation, smart grids, district heating, and net-zero energy facilities.	Focused
GST 6101	Global Literacy, Culture, and Community	GP	Introduces basic theories of culture, identity, and communication. Topics may include race, ethnicity, social class, gender, national identity, and religion. Explores these theories and topics through an in-depth study of a particular aspect of culture within a chosen country. Introduces students to the use of qualitative methods in the analysis of culture and communication. Offers students an opportunity to use these tools to hypothesize the impact of future global trends on contemporary cultures and identities.	Inclusive
GST 6102	Global Corporate Social Responsibility	GP	Examines the social responsibilities of corporations and individuals in the global 21st century. Topics include outsourcing, offshoring, international labor laws, global environmental responsibility, global human rights, global citizenship, and sustainable development. Today's global organizations understand that corporate social responsibility (CSR) must become central to their strategies in order to be truly sustainable. Explores the driving forces behind CSR, the ways that companies incorporate CSR into their growth strategies, and the risks of falling behind. Discusses how companies' views of CSR have shifted from compliance and philanthropy to efficiency and growth opportunities. Focuses on the use of qualitative and quantitative methods in the analysis of current policies and practices of multinational corporations, nation-states, and international nongovernmental organizations.	Focused
GST 6340	The Economics of Development	GP	Introduces the use of economic indicators and measurements of development with reference to situations that have led to economic crises and subsequent responses by governments and institutions. Examines the predominant policy responses of rich and poor countries to the challenges of development, including issues of international assistance and recent trends in poverty reduction and participatory development. Offers students an opportunity to understand drivers for economic growth in developing and mature economies.	Inclusive

GST 6350	Global Economics of Food and Agriculture	GP	Designed to provide students with a broad-based understanding of the global food system, while assessing its performance in terms of satisfying world food needs. Examines international dimensions of food system performance, including global trade and international aid; supply and demand trends and their implications for global food security; food and agricultural trade policies; ethics and safety regulations; and specific national food systems. Also examines specific commodity chains and their impact on economic development.	Focused
GST 6501	Regional Studies: East Asia	GP	Examines regional stability and cooperation, efforts to foster democracy and human rights, and policies that have led toward increased trade and rapid economic prosperity. Explores pressures on traditional societies confronting globalization, changing roles of women, demands for improved education, along with challenges from transnational crime such as money laundering, trafficking in persons, and narcotics smuggling.	Inclusive
GST 6503	Regional Studies: Sub-Saharan Africa	GP	Explores issues in Sub-Saharan Africa surrounding democratic governance, civil society, and regional cooperation; the role of economic growth and development; efforts in conflict prevention, mitigation and resolution; challenges in the fields of health, agriculture, energy, education, and the role of women; and the problem of transnational crimes, such as narcotics smuggling, the arms trade, and trafficking in persons.	Inclusive
GST 6505	Regional Studies: Southwest and Central Asia	GP	Focuses on countries of Central Asia as well as the subcontinent. Explores economic development, political transition, education, security, health, environmental challenges, religion, and the changing role of women in this region.	Inclusive
GST 6506	Regional Studies: Latin America	GP	Covers all of Central and South America and the Caribbean. Explores economic development in the poorest regions; managing rapid growth elsewhere; and approaches to challenges including democratization, rule of law, civil society, health, narcotics, environment, and regional economic integration.	Inclusive
GST 6540	Politics of the European Union	GP	Explores various political, economic, and social aspects of creation and functioning of the European Union. Introduces the politics, structure of governance, institutional design, and various policies of the European Union. Begins with a historical overview of the European integration process and surveys various theories of integration. Separate sessions cover particular topics, such as history and evolution of the EU integration, major institutions, interinstitutional dynamics of governance, and role member states. The second part of the course deals with current key policy issues, such as environment, enlargement, immigration, EU citizenship, crime prevention and terrorism, monetary union, CFSP, euroscepticism, and democratic deficit.	Inclusive

GST 6610	Sustainable Development	GP	Examines the basic tools of policy analysis in the area of sustainable development. Introduces various techniques used by states, NGOs, and private corporations trying to create viable policy. These may include game theory, cost-benefit analysis, and critical mass models. Utilizes global case studies to analyze current policy and consider political viability of development programs. At the conclusion of the course, students are required to produce policy recommendations and a policy memo.	Focused
GST 6700	Global Health Perspectives, Politics, and Experiences in International Development	GP	Examines the linkages between health and development that can only be understood within the broader context of sociopolitical and economic factors. Begins with the recognition that poverty plays a central role in many preventable diseases. With the development of nations have come improvements in health. In the landscape of globalization and international development, there has emerged a vast international health regime. Focuses on these linkages in the context of this international political economy of health. Examines key aspects including the concepts and architecture of global health, the global burden and epidemiology of disease, health and development of nations, and political-economic determinants of health and development. Uses a variety of analytical perspectives including political, legal, economic, and epidemiological.	Inclusive
GST 6740	Human Rights	GP	Introduces students to the concept of international human rights. Focuses on the role of global, regional, and national institutions to protect human rights as well as create and enforce human rights law. Explores the role of nongovernmental organizations and the media in fact-finding and publicizing human rights violations, along with current issues and case studies.	Inclusive
HIST 2000	Native American Resistance: Past and Present	UG	Introduces the Indigenous peoples of North America and the academic field of Native American and Indigenous studies. Combines public history and public art, field trips, and original research to focus on the ongoing resistance to colonization and erasure and the resilience of Indian nations in New England and beyond. Covers particular themes, including the present-day impact of historical treaties and policies including land allotment, relocation, termination, boarding schools, and natural resource extraction.	Inclusive
HIST 5237	Issues and Methods in Public History	UG | GR	Examines and analyzes major issues and methods in public history in the United States and the world. Topics include the nature and meaning of national memory and myth, the theory and practice of historic preservation, rural and land preservation and the organizational structures and activities associated with those efforts, the interrelationship of historical museums and popular culture, the history and organization of historic house museums, historical documentary filmmaking, historical archaeology in world perspective, interpreting "ordinary" landscapes, and the impact of politics on public history.	Inclusive

HLS 6070	Emergency Management and Geographic Information Systems	GP	Explores how emergency management activities can best utilize geographic information technologies (GIT) to solve real-world issues in emergency management. This includes planning and response for both natural disasters and man-made events (accidental and terror-related incidents). Through the use of a variety of tools and analytical techniques, demonstrates and explores the nexus between emergency management and GIT. Exposes students to an understanding and appreciation for that relationship as well as the tools and skills for appropriate utilization of them.	Inclusive
HLS 6155	Critical Infrastructure, Security, and Emergency Management	GP	Examines real-world critical infrastructure protection and emergency response to analyze and assess the essential points of protection and prevention combined with emergency response mechanisms for natural and man-made crises. Examines policy, programs, and management of critical infrastructure risk and protection in the context of emergency management and planning for the varying levels of public and private sector involvement. Uses the 16 Critical Infrastructure Sectors as a basis of examining the collaborative responses and complex interactions at all levels of government for today's emergency management concerns. Uses frameworks such as the National Preparedness System, the National Incident Management System, and others to analyze emergency management processes and examples of historical critical infrastructure threats, failures, and incidents.	Inclusive
HUSV 1101	Social Change and Human Services	UG	Offers students an opportunity to obtain a foundation for understanding social inequality and for practicing in the human services field. Introduces students to a range of specializations in the area of human services through lectures, service-learning, group work, individual projects, papers, debates, and presentations. Analyzes and applies ethical frames for practice using case studies and service-learning experiences. Additionally, students are expected to develop an understanding of the history of nonprofit and government responses to inequality and the social, political, and economic forces that influence social professionals.	Inclusive
INAM 6100	Critical Foundations of Creative Practice	GR	Introduces core theoretical foundations of the creative practice and creativity studies fields. Considers interdisciplinary, contemporary, and critical frameworks alongside themes such as creative economies; performance and reception studies; placemaking; social and ecological justice; critical race and gender studies; and the intersection of ethics, culture, politics, and public policy around modes of creative practice.	Inclusive
INTB 1203	International Business and Global Social Responsibility	US | UG	Introduces the student to forces and issues confronted in our era of rapid globalization. Managers must understand forces from interconnected social, political, and economic national environments that affect their company's operations. At the same time they need to draw on their ethical foundations to address and act on social responsibility imperatives across national borders.	Inclusive

INTL 1160	Middle East Studies	UG	Concentrates on the history, politics, cultures, and economics of the Middle East and North Africa (MENA) countries in the 20th and 21st centuries. Explores topics such as empire, colonialism, revolutions, state-building, development, and social movements. Offers students an opportunity to obtain interdisciplinary skills to analyze dynamics of gender, class, race/ethnicity, and religion in MENA countries.	Inclusive
INTL 2100	Modern Israel	UG	Introduces students to an Israel rarely seen in the news: Films, art, music, short stories, food, and spiritual movements show Israel from a different point of view and expose students to the questions Israelis ask themselves in order to define their own identity. Modern Israel is a fascinating, vibrant, talented, imperfect nation of people from 100 different countries. Thus, conflicts, tensions and contradictions lie at its heart: Ashkenazi Jews complain the country is too Levantine; Sephardi Jews complain about deprivation; Israeli Arabs complain about their position in the nation; Orthodox Jews say the state is not sufficiently religious; seculars consider it antiquated in nature. Immigrants from Russia and Ethiopia, foreign guest workers, water crises, and the Arab-Israeli conflict also figure in the story.	Inclusive
INTL 3201	Cities in a Global Context (Abroad)	UG	Focuses on the character of space, place, and culture of a contemporary world (global) city. Explores the material transformations of the city and how people understand and imagine the places, spaces, times, and environments they inhabit. Addresses issues of global geographies of cultural change, especially the relationship between the local and the global; questions of place, identity, and landscape, especially at the local level; the significance of place and space in the invention of modern traditions, including places of memory (memorials, museums); the nature of public space and its relations to citizenship; gentrification and the role of art in the city and nature-society relations as expressed in urban parks. Includes a combination of lectures and guided and self-directed field trips in the selected global city. May be repeated without limit.	Inclusive

INTL 5100	Climate and Development	UG | GR	Serves as an introduction to climate change and development processes in developing countries. Exposes students to key debates in the fields of climate change and international development. Offers students an opportunity to learn about the approaches to climate adaptation, the relationship between adaptation and development, and concepts of resilience and transformation. Using a comparative case study approach, explores the importance of the local context; the intersections of politics, economics, and culture; ecology and human-environment relationships; and the role (and challenges) of finance and development assistance. Climate impacts threaten to reverse many of the development gains of the last century, and the most vulnerable are likely to be the most impacted by climate change. At the same time, opportunities exist to ensure climate-compatible development pathways. INTL 5100 and PPUA 5100 are cross-listed.	Focused
JRNL 3650	Science Writing	UG	Explores the role of journalism in delivering science news and information to a general audience through print and digital media. Through readings and analysis of a variety of news media, offers students an opportunity to learn how political debates intersect with and shape scientific developments and how scientific developments can be sensationalized or misunderstood. Students also have an opportunity to learn and apply best journalistic practices to communicate effectively in the media about science, health, environmental, and technology issues whether headed to a newsroom, corporate press office, or scientific institution.	Inclusive
JRNL 6201	Enterprise Reporting 2	GR	Builds on skills and concepts covered in JRNL 6200. Covers a variety of Web-based and traditional resources. Employs computer-assisted reporting methodologies to assist students in investigating areas such as government corruption, safety and environmental risks, criminal justice, education, healthcare, real estate, campaign financing, and business and financial transactions. Offers students an opportunity to learn how to access public databases, to reference materials, and to analyze the information.	Inclusive
LARC 2130	Sustainable Urban Site Design	UG	Focuses on site planning and design with an emphasis on parks and open-space systems in the adaptive reuse of urban sites. Projects focus on the creation and cultivation of public space, transformation of site conditions, and development of sustainable site materials. Emphasizes site analysis, development of an individual design process, and design communication strategies. This studio course introduces students to urban design precedents, site research, and remediation methods through case studies, lectures, site visits, and workshops.	Focused

LARC 2140	Designed Urban Ecologies	UG	Continues LARC 2130. Focuses on sustainable community/campus/neighborhood design at the intersection of large-scale urban and environmental systems. Primary topics include mixed-use programming in relation to systems ranging from zoning and transit to the material flows of human and wildlife habitats. This studio course introduces basic geographical information systems (GIS) and application of landscape ecology principles. Projects examine the role of landscape systems and the formation and reformulation of land development scenarios.	Focused
LARC 2230	Introduction to Sustainable Site Planning and Design	UG	Addresses fundamental techniques of sustainable site design in the built environment, including earthworks, water, and soils, using current-day storm events. Primary topics include topography, site grading, study models, universal accessibility, and storm water considerations in urban and other built environments. Introduces students to urban tree planting techniques, graphic communications, basic site materials, and construction details.	Focused
LARC 2330	Cities, Landscape, and Modern Culture	UG	Seeks to instill basic landscape literacy enabling students to read urban landscapes and recognize different ways of knowing landscapes, including everyday landscapes. Presents key concepts, ethical debates, and iconic works that gave shape to modernism in landscape architecture and urbanism. Focusing on eighteenth-century through mid-twentieth-century projects and designers, examines contextual factors and resulting formal, spatial, organizational, and material characteristics of built works. Using case studies, challenges students to analyze the entangled histories of landscape preservation and urban segregation and to apply theories of environmental ethics and environmental justice to questions about the built environment and the relationship between natural and social systems. Offers students an opportunity to practice formulation of a critical design perspective and landscape interpretation via reading responses, project analysis, written work, podcasts, and StoryMaps.	Inclusive
LARC 2340	Cities, Landscape, and Contemporary Culture	UG	Presents the core themes, social theories, ethical debates, and iconic works that shape the field of contemporary landscape architecture and urban design, particularly in the context of environmental change and climate disruption. Focuses on contemporary projects and designers to examine formal characteristics of built works and contextual factors, including social, political, and economic systems and institutions. Challenges students to apply theories of environmental and climate justice to questions about the built environment and the relationship between natural and social systems. Designed to prepare students to address complex sociocultural and environmental issues through thoughtful inquiry and creative expression. Offers students an opportunity to formulate critical design perspectives via reading responses, project analyses, written work, and podcasts.	Focused

LARC 2430	Plants, People, and Landscape Change	UG	Uses the study of New England's plant communities and plant identification as a framework to consider the evolution of the New England landscape from European colonization to the present. Combines field study with lectures and class discussion. Human activity, land use, and settlement patterns all influence the development of landscape, and our cultural history is expressed in the species demographics, land forms, and ecosystem dynamics of our environment.	Focused
LARC 2440	Planting Design	UG	Combines horticultural and ecological field study with studio design exercises to deliver introductory to advanced planting design techniques. Primary topics include how to design phytoremediation strategies for contaminated sites, seasonal planting considerations, strategic phasing, and maintenance techniques. This is a workshop-based course.	Inclusive
LARC 5210	Landscape Ecology	UG | GR	Introduces fundamental-to-advanced concepts in the field of landscape and urban ecology. Focuses on the landscape-scale spatial structure, temporal patterns, and geographic ranges produced by the intersection of large-scale environmental and human processes. Emphasizes spatial taxonomies (patch, corridor, mosaic, granularity, edge, ecotone) produced across diverse landscape types influenced by human development and landscape dynamics in the built environment (disturbance, fragmentation, accumulation, and succession). Incorporates basic techniques in geographic-information-system software.	Inclusive
LARC 5220	Sustainable Landscape Practices	UG | GR	Offers a lecture/workshop/field-based course that builds upon landscape technology skills introduced in LARC 2230 and LARC 2240, with a focus on ecotechnologies operating in the built environment. Core topics include design and implementation metrics, material life-cycle management, funding models, and aesthetic and cultural aspects. Potential topics include green roofs, green walls, bioswales, pervious pavements, constructed wetlands, "complete street" elements, geosensor networks, alternative waste management, water detention and energy generation methods, and living infrastructures for coastal environments.	Focused
LARC 5310	Urban Landscape Seminar	UG | GR	Offers a discussion-based seminar focusing on case studies of influential works in contemporary landscape, urbanism, and sustainable environmental design. Encourages students to seek interdisciplinary perspectives toward development of critical-thinking skills in relation to forces shaping urban environments in contemporary global culture. A diverse range of material from published design criticism to open-source social media engagement provides basis for discussion and written and oral presentations.	Inclusive

LAW 7329	Environmental Law	LW	This course focuses on federal and state environmental laws. Topics include pollution control, waste management, and cleanup of contaminated land and water. The course explores legislative policy and regulatory decisions as well as enforcement issues. We will give attention to questions of environmental justice and to the strategic use of legal tools in working to ensure safe and healthy surroundings for diverse groups of people. CROSS LISTED as LW 7329 for GR	Focused
LAW 7491	International Human Rights and the Global Economy	LW	This course surveys the international human rights legal system. It includes the promotion and protection of economic, social, and cultural rights (such as rights to health, food,water, andeducation) and civil and political rights (such as equality and non-discrimination, the right to human security, the prohibition on torture, and rights to religious and cultural expression). We begin by examining the history and theoretical origins of human rights law. We then engage the legal framework under international and regional human rights treaties and interpretations of them by international, regional and domestic courts and other actors. We examine international, regional and domestic mechanisms for monitoring compliance. Finally, we grapple with tensions among cultural and religious imperatives and traditional human rights.	Focused
LAW 7634	Energy Law and Policy	LW	Climate change and carbon emissions are the most important issues shaping energy law and policy in the United States today. This course will provide an introduction to U.S. energy law and policy in that context and will be organized around the regulated electricity sector which alone produces about 40% of all U.S. greenhouse gas emissions. We will explore the dynamics of natural monopoly markets, public utilities and their regulation, and the interplay of state and federal power in the energy space. We examine coal, natural gas, nuclear power, hydropower, renewables, storage, and efficiency for their impacts and potential as electrical energy sources in a carbon-constrained world. We conclude by investigating the legal potential to proactively foster and sustain a transition to a carbon-sustainable energy economy.	Focused
LAW 7651	Human Rights in the United States	LW	This seminar explores the role of international human rights frameworks and strategies in social justice lawyering in the United States. On a range of issues, lawyers are bringing human rights home. They are using human rights mechanisms of the United Nations and Inter-American Human Rights system, drawing on international human rights and comparative foreign law in litigation before U.S. courts, and engaging in other human rights-based advocacy such as documentation, organizing, and human rights education. Advocates find that a human rights approach provides important strategic leverage and highlights the interdependence of economic, social, cultural, civil, and political rights. We will use skills exercises, assignments and real-world problems to develop practical skills to address policies on local, state and national levels, and to support social movements.	Inclusive

LAW 7664	Law and Inequality	LW	Explores inequality from a range of disciplinary perspectives and the difference that can make in a variety of legal, social, and economic contexts. Elaborates methodologies for mapping ways diverse legal regimes and concepts contribute to the production, recognition, reinforcement, and maintenance of hierarchies of privilege and disadvantage between individuals, groups, localities, regions, and nations. Identifies key legal drivers in the production of inequities and explores how they shift bargaining power, redistribute resources, or otherwise ameliorate inequities or their adverse consequences. Students research a circumstance of inequality and develop a legal map to engage it. With permission of instructor, students may register for an additional credit by completing a substantial paper or equivalent writing project (in addition to other course requirements) as required by the instructor.	Inclusive
LAW 7666	Human Rights, the Environment, Development and Community Resilience	LW	This course explores the interlinkages between human rights and the environment within the context of how unsustainable development, especially by businesses, is driving environmental degradation and global human rights violations. We will appraise how communities are responding with innovative lawyering utilizing emerging jurisprudence in comparative law and judicial, quasi-judicial, and non-judicial grievance mechanisms, with special attention to African examples. The course will emphasize practical approaches to environmental protection using human rights instruments. The power of corporations and financial institutions, the ways in which corporate activities often connect to abuses of human rights and the environment, and legal advances in the regulation of transnational corporate activity will be explored while also discussing corporate accountability, the global justice movement, and strategies being used to address these trends.	Focused
LAW 7679	Race and the Law	LW	This course examines the role of the law in perpetuating and alleviating racial inequality in the United States. We will interrogate historical and contemporary debates about the law and racial inequality. We will bear down on a question that is often asked by critical race scholars: why does inequality persist despite massive legal transformation especially following the civil rights movement? We will approach this question by examining how the law and legal institutions shape racial identity and how ideas about race shape legal institutions. The course will also consider tensions and debates within critical race theory and among race scholars. We will excavate the stakes of these debates and the consequences (intended and unintended) of various legal reform projects designed to address racial inequality.	Inclusive

LPSC 2301	Introduction to Law, Policy, and Society	UG	Examines the relationship of society to its laws: how society creates changes in law or policy via societal pressure and social movements (such as the environmental, women's rights, and corporate accountability movements); how law and policy affect individual rights and behavior; whether a society needs laws in order to function; the relationship between some branches of our government in effectuating social change; and some of the fundamental differences between societies governed by seemingly similar but pragmatically different laws, such as the right to a jury trial.	Inclusive
LPSC 5201	Law and the City	UG | GR	Examines key legal structures, court decisions, and social research to consider the ability of cities to make and implement public policies that directly affect the everyday lives of millions of people. American cities and their residents are frequently faced with similar legal and political questions. Topics include federalism, land-use planning and development, business regulation, gun control, school choice, public health, and climate adaptation initiatives.	Inclusive
LPSC 7312	Cities, Sustainability, and Climate Change	GR	Provides an overview of the various aspects of urban sustainability planning. Examines sustainability as an urban planning approach with both ecological and social justice goals. Covers sustainable planning and offers students an opportunity to understand it within the context of smart growth and the new urbanism. Focuses on the two areas in which cities can reduce energy consumption and greenhouse gas emissions--the built environment and transportation. From there, the course examines planning efforts to reduce demand on water and sewer systems and to create employment in renewable energy and other "clean-tech" occupations. The course ends by placing urban initiatives in the context of state and national policy.	Focused
LS 6102	Introduction to Legal Studies 2	LW	This course builds on LS 6101 with its emphasis on common law by introducing students to statutes and regulations. The setting involves federal administrative agencies governing employment, consumer protection, environment, labor, cyberlaw, intellectual property, and international trade. Exercises and discussions require finding, summarizing, applying and arguing about the applicability of statutes and regulations in concrete situations. The capstone of the course allows students to create a project to illustrate the lessons learned in the course.	Inclusive
LS 6235	Current Issues in Law and Public Policy	LW	Examines the evolving roles of courts, agencies, legislatures, citizen movements, and nonprofit organizations in policymaking through case studies of current debates in law and policy. Explores how businesses and advocacy groups combine the use of legal tools and other activities to achieve policy goals. Considers how law can be used to right past wrongs and how grassroots activities and individual actions can contribute to a fight against injustice. Focuses on a range of policy issues; possible topics include but are not limited to healthcare reform, criminal justice reform, racial justice, reproductive rights, marriage equality, and environmental justice.	Inclusive

LW 6400	Law, Policy and Legal Argument	GR	This course explores the legal levers that drive policy change. Advocates often intend to alter public policy in support of an organization or a cause. But influencing policy requires understanding who sets policy in the first instance. Is the issue governed by federal, state or local law? Are key decision makers elected or appointed? Who is it most important to persuade and what sorts of arguments are likely to convince the key audience? This course will introduce students to the mechanisms of government that drive key policy debates across a wide range of issues, which may include health care, market regulation, environmental policy, housing, education, the internet, privacy, and social policy. Emphasis will be placed on tailoring arguments to different constituencies.	Inclusive
LWP 6403	Law and Policy Concepts 3: Policy Case Studies	GP	Reviews how modern policy scholarship is applied to public policy challenges. Topics may include, but are not limited to, healthcare, criminal justice, environmental policy, labor policy, economic development, housing, or social welfare. Offers comparisons allowing students a broader perspective of issues that surround law and policy domestically in the United States and globally in other sovereign states.	Inclusive
MATH 5131	Introduction to Mathematical Methods and Modeling	UG | GR	Presents mathematical methods emphasizing applications. Uses ordinary and partial differential equations to model the evolution of real-world processes. Topics chosen illustrate the power and versatility of mathematical methods in a variety of applied fields and include population dynamics, drug assimilation, epidemics, spread of pollutants in environmental systems, competing and cooperating species, and heat conduction. Requires students to complete a math-modeling project. Requires undergraduate-level course work in ordinary and partial differential equations.	Inclusive
MATL 6250	Soft Matter	GR	Introduces the relatively young field of soft matter, which encompasses the physical description of various states of soft materials including liquids, colloids, polymers, foams, gels, granular materials, and a number of biological materials. Soft matter (also known as "soft condensed matter" or "complex fluids") is less ordered than metals and oxides (hard condensed matter) and is more subject to thermal fluctuations and applied forces. Focuses on critical thinking, problem diagnosis, estimation, statistical analysis, and data-based decision making. Includes many in-class demonstrations from colloidal assembly to emulsion stability to cellular apoptosis. Highlights applications such as industrial processing, life sciences, and environmental remediation. Requires graduate study in related field or permission of instructor.	Inclusive

MATL 6270	Principles, Devices, and Materials for Energy Storage and Energy Harvesting	GR	Introduces students to materials, devices, and mechanisms for clean and sustainable energy while providing a broad overview of energy storage and energy harvesting. Offers examples related to materials and devices used in energy storage and harvesting and delves into the principles that underlie the performance of advanced electrochemical storage and harvesting systems, for example solar energy and mechanical energy. Also covers efficient energy usage, such as energy-efficient lighting and building. Beyond course content, assignments provide students with opportunities to practice concise writing and peer review of abstracts, deliver scientific presentations, and explore optimum ways to present technical information. Students should have some prior knowledge of materials science, electrochemistry, and/or semiconductor physics.	Focused
ME 2340	Introduction to Material Science	UG	Introduces the materials science field, which emphasizes the structure-processing property-performance relationships for various classes of materials including metals, ceramics, polymers, electronic materials, and magnetic materials. Topics include crystallography, structure of solids, imperfections in crystals, mechanical properties, dislocation theory, slip, strengthening mechanisms, phase equilibrium, phase transformations, diffusion, thermal and optical physical properties, and electrical and magnetic properties. Issues associated with materials selection, including economic and environmental consequences of materials choices, are also addressed. Laboratory experiments, with written memo and report submissions, are required. Includes individual and team-based projects.	Inclusive
ME 5645	Environmental Issues in Manufacturing and Product Use	UG | GR	Explores environmental and economic aspects of different materials used in products throughout the product life cycle. Introduces concepts of industrial ecology, life cycle analysis, and sustainable development. Students work in teams to analyze case studies of specific products fabricated using metals, ceramics, polymers, or paper. These case studies compare cost, energy, and resources used and emissions generated through the mining, refining, manufacture, use, and disposal stages of the product life cycle. Debates issues in legislation (extended product responsibility, recycling mandates, and ecolabeling) and in disposal strategies (landfill, incineration, reuse, and recycling). Discusses difficulties associated with environmental impact assessments and the development of decision analysis tools to weigh the tradeoffs in technical, economic, and environmental performance, and analyzes specific case studies.	Focused

ME 7300	Combustion and Air Pollution	GR	Deals with the formation of pollutants during combustion processes and their subsequent transformations in the atmosphere. Emphasis is on the effects of design and operating parameters of combustion devices on the nature and composition of exhaust gases, improvements, postcombustion treatment of effluent gases, atmospheric chemistry, and atmospheric transport of pollutants, smog formation, acid rain, ozone formation, and destruction.	Inclusive
MECN 6205	Sustainability and the Economics of Markets	GR	Examines the idea that building a sustainable business enterprise often involves correcting market failures. Examines the responsibilities of the business enterprise to society at large. Also explores the causes of and remedies for market failures, such as immigration, education, healthcare, climate change, and finance, and what these mean for governments, businesses, and individuals.	Focused
MET 4100	Mechanical Engineering Systems Design	UC	Covers the fundamental principles of mechanical design including details of the engineering design process, design factors, creativity, optimization, safety, and value engineering. Discusses properties and selection of common engineering materials used in design and manufacturing of mechanical components and machines. Focuses on analysis and design of typical machine elements that operate under mechanical loads and stresses, including shafts, gears, bearings, belt and chain drives, clutches, brakes, fasteners, springs, torsion bars, power screws, linear actuators, and joints. Integrates computer usage for efficient and rapid design, formulae evaluation, mathematical simulation, design selection and optimization, and virtual prototyping. Discusses additional elements of engineering design such as cost analysis, robustness, quality improvement, and environmental concerns.	Inclusive
MGMT 6225	Sustainability and Leadership	GR	Examines how organizational leaders influence decisions to advance an environmental agenda. Studies the scientific knowledge that organizational leaders must have to make effective sustainability decisions. Analyzes how a variety of organizations, including businesses, governments, government-sponsored enterprises, and nongovernment organizations, interact on environmental issues.	Focused
MGMT 6226	Sustainability and the Business Environment	GR	Examines how the environment affects corporate strategy, public policy, and individual decision making. Exposes students to the skills and knowledge needed to help organizations understand and act upon the principles of sustainability. Examines a variety of environmental problems, including global warming, use and disposal of toxic substances, and depletion of natural resources. Also studies how companies solve these problems by reducing their impact on the environment through solutions such as zero emissions, green design, and corporate environmental reporting.	Focused

MGT 2220	Supply Chain Management	UC	Explores the basic concepts of managing a supply chain that produces goods and/or services. Offers students an opportunity to examine the fundamental functions and processes of a fully integrated supply chain, identify the key business and economic drivers of supply chain performance, and understand the strategic decisions that enable a supply chain to directly support business objectives. Topics include basic functions within a supply chain--planning, sourcing, forecasting and demand planning, manufacturing, inventory management, logistics, just-in-time (JIT), lean, Six Sigma, outsourcing, and sustainability.	Inclusive
MGT 2550	Sustainable Entrepreneurship	UC	Seeks to help students assess the organizational benefits and the social implications of developing sustainable business models, starting from a definition of what a social enterprise is and how it differs from other types of business. Covers recent theories and frameworks on social and sustainable entrepreneurship, exploring best practices and case studies of purpose-driven companies. Offers students an opportunity to apply entrepreneurial business principles to provide social benefits in areas such as the environment, workforce development, education, health, community, and international development. Students develop a sustainable business idea by identifying challenges and opportunities and applying ethical reasoning needed to make business safer, fairer, and more positively impactful.	Focused
MSCR 1320	Media and Social Change	UG	Explores media's role in movements for social, economic, and cultural change. Specifically examines how people use media technologies to organize themselves and communicate their message to wider audiences in order to achieve social change. As a way to develop and improve ethical reasoning, students are asked to think about the accountability of media institutions and actions of groups and individuals who use media technologies and tactics in the name of social change.	Inclusive
MSCR 2335	Race and Social Justice in American Film	UG	Offers an in-depth analysis of and reflection upon films and how they influence our perceptions of race in the United States. Examines how race and its representation shapes the development, production, distribution, and marketing of American documentaries and dramas. Uses screenings, readings, lectures, discussions, and writing to explore the power of films to reflect and reinforce long-standing ideologies of race and analyze how traditionally underrepresented groups have historically shaped counter-narratives.	Inclusive

MUSI 3351	Music and Social Justice	UG	Introduces theories of ethics, morality, and equality and strategies to advance social justice—to ensure equality and human dignity for all people—through music. Explores the music industry as both a microcosm of society and amplifier of our collective ethics. On stage, on the record, and through direct action, musicians worldwide use their art and renown to serve social movements. Many also face equality and equity challenges within the music industry. As future professionals, students may either challenge or reinforce the injustices they encounter in their professional and personal lives.Through critical discourse on professional ethics in the music business and service-learning projects requiring direct community engagement, seeks to empower students to make a lifelong commitment to ethical decision making and advancing social justice.	Inclusive
NPM 6210	Social Value Investing and Effective Partnerships	GP	Explores cross-sector partnerships as an effective way to build social impact and serve the greater good. Research has proven that government alone cannot address the major societal challenges; new kinds of collaboration have emerged between the public and private sectors. Leaders from nonprofit organizations are engaging in implementing new approaches that require innovation, inclusivity, shared value, and sustainable solutions. Specifically examines the reasons parties come together, the collaborative approach in which they build their agreements, and the measurement of their social impact.	Inclusive
NPM 6310	Social and Sustainable Entrepreneurship	GP	Seeks to introduce students to the meaning of social entrepreneurship. Exposes students to the social entrepreneurship term that has come to be applied to the activities of grassroots activists, NGOs, policymakers, international institutions, and corporations, among others, which addresses a range of social issues in innovative and creative ways. Offers students an opportunity to learn how to address complex sustainability challenges using experiential problem-based learning, current research, and best practices connected to social/sustainable enterprises. Topics include the design of social and sustainable enterprises, frameworks for problem solving and planning, analysis of social and environmental impact, and private-public partnerships.	Focused
NPM 6320	New Ventures in Social Entrepreneurship	GP	Focuses on entrepreneurial ideas that generate social impact. Offers students an opportunity to explore social entrepreneurship and test ideas for social innovation in a rigorous and supportive environment. Covers how to generate an innovative business idea, how to address social issues and have an impact, and how to develop an action plan and consequently measure for results. Offers insights on communication, business plans, and presentation skills.	Inclusive

NRSG 7925	Health Policy and Advocacy	GR	Examines the scientific foundations integral to meeting the competencies outlined in The Essentials of Doctoral Education for Advanced Nursing Practice (2006). Seeks to provide students with the knowledge and opportunity to develop skills and competencies essential to assuming leadership roles in the development of health policy. Contrasts the major contextual factors and policy triggers that influence health policymaking at the various levels. Exercises are aimed at developing skill in the design, implementation, and advocacy for healthcare policy to address issues of social justice and equity in healthcare. Additionally, the course integrates practice experiences with two additional skill sets--the ability to analyze the policy process and the ability to engage in politically competent action.	Inclusive
NTR 6165	Food and Society	GP	Covers healthy food trends and food products that affect how we live. Includes advanced analysis of food in our society and environment. Examples are the organic movement, product and meal trends in supermarkets and restaurants, food and the economy, food politics, food labeling, and culinary nutrition trends. Focuses on how one can implement the findings into one's practice and/or area of expertise.	Focused
PBR 6125	Community Relations and Corporate Social Responsibility	GP	Explores why corporate social responsibility and strong community relations are increasingly important elements of business strategy. Considers the factors that enable an organization to build relationships with the broader community within which it operates. Offers students an opportunity to develop a corporate social responsibility campaign as a signature assignment that incorporates ethical considerations and multimedia methods of delivery.	Inclusive
PHIL 1102	Introduction to Contemporary Moral Issues	US | UG	Focuses on current controversial issues and moral debates. Specific topics vary but include subjects like abortion, euthanasia, global poverty, economic justice, affirmative action, gender relations, animal rights, the environment, the death penalty, war, cloning, and same-sex marriage. Offers an opportunity to learn to apply both the methods of philosophical analysis and various ethical and political theories to these controversies.	Inclusive
PHIL 1160	Introduction to Economic Justice	UG	Explores questions of economic justice from a philosophical perspective. Examines capitalism, what it is and what its ethical virtues and limitations are; if there are changes or alternatives to capitalism that would make our economic system more just; how much economic inequality we should consider morally acceptable; and in what ways racism and gender discrimination impact the fairness of our economy. Considers these questions by reading works in the history of philosophy while also engaging with contemporary philosophers writing about current challenges to economic justice, such as racism, gender discrimination, and economic inequality.	Inclusive

PHIL 1170	Business, Ethics, and Human Rights	UG	Examines the moral, social, and human rights implications of business for individuals and communities, both globally and domestically. Topics include corporate social responsibility, stakeholder theory, advertising, and gun violence, diversity and racism, CEO activism, affirmative action in the tech sector, the gig economy and employee rights, as well as human rights violations by multinational companies, including sweatshops and environmental harms. Examines the contributions of both big and small businesses to making the world a better place and considers policy that can work to that end.	Inclusive
PHIL 1180	Environmental Ethics	UG	Focuses on a current ecological crisis and addresses the values that underlie our concern over this crisis, whether the values at issue are anthropocentric or biocentric. Explores the ethical implications these ecological concerns have for our individual lifestyles, and for our role as members of communities.	Focused
PHIL 1185	The Ethics of Food	UG	Introduces the ethics of food. Elucidates a wide range of ethical issues associated with food production, processing, distribution, and consumption. Offers students an opportunity to develop skills in ethics and values analysis that can be applied to evaluate food-related practices and policies. Includes topics such as the ethics of different food systems, genetically modified crops, meat eating, hunting, food security, food justice, sustainability, synthetic meat, food advertising, food safety, and foodie culture.	Focused
PHIL 1195	Research Ethics	UG	Addresses how to engage in scientific, medical, and technological research in an ethically responsible manner. Research is crucial to understanding social, environmental, and health problems, as well as to developing effective responses to them. If the paradigm of responsible research is too restrictive, the benefits of scientific progress and technological innovation can be delayed or unrealized. At the same time, researchers have a responsibility to protect research subjects, to appropriately engage with members of the community, and to avoid behaving in ways that undermine scientific research in the long run. Explores the many ethical dimensions of research, and introduces students to the ethical foundations and controversies that are central to developing appropriate ethical frameworks for engaging in research.	Inclusive
PHIL 2155	Human Rights	UG	Offers students an opportunity to obtain a solid understanding of the political, philosophical, and legal dimensions of human rights as well as an overview of some of the current debates in human rights. Discusses the intellectual history of human rights and explores their philosophical and historical roots. Examines their legal and political dimensions and human rights laws and institutions. Explores in-depth a number of contemporary human rights issues including genocide, women's rights, children's rights, refugees, and torture.	Inclusive

PHIL 3000	Interdisciplinary Methods for Politics, Philosophy, and Economics	UG	Offers students an opportunity to learn to think, research, and write in an interdisciplinary way and bring together the core methods of the three disciplines constituting the PPE major: philosophy, political science, and economics. Examines issues such as housing, environmental justice, and immigration, among others, through an interdisciplinary lens. Students analyze how systemic racism, gender, and other power structures have created asymmetrical distribution of resources, power, and political opportunities and shaped institutions, policies, and outcomes. Includes a service-learning requirement that takes place across the semester. PPE majors should plan to take this course when the majority of the major core courses are complete.	Inclusive
PHIL 3500	Sexuality, Gender, and the Law	UG	Examines the legal regulation of gender and sexuality. Investigates concrete legal cases to study the history of constitutional interpretation and the current status of rights for women and sexual minorities. Focuses on important theoretical issues emerging in the writings of diverse feminist and queer legal scholars. Addresses debates over the value of conventional equality approaches in legal doctrine; equality vs. difference perspectives; ways in which legal language constructs gender and sexuality; the incorporation of sexuality and gender in ideologies of law; and the intersections of gender, sexuality, and race in legal doctrine and legal theory. PHIL 3500, POLS 3500, and WMNS 3500 are cross-listed.	Inclusive
PHIL 3822	Philosophy of Race and Racism	UG	Considers how philosophical tools can help us to understand the issues of race and racism. Controversies about these issues continue to play a crucial role in the public domain. Explores questions such as what is meant by the term race as a biological category; how has the meaning of “race” shifted with time and culture; what is racism (as well as racial injustice and racial discrimination and how should we understand its persistence in areas such as housing and policing); and what steps should be taken to end racism. Examines related phenomena, including xenophobia, ethnocentrism, and imperialism, as well as intersecting forms of oppression, such as sexism. Readings draw on both historical and contemporary sources. Requires two prior courses in philosophy or department permission to register.	Inclusive
PHIL 5001	Global Justice	UG | GR	Explores the theoretical, political, and philosophical foundations of the obligations that underlie global justice. Theoretical approaches include human rights, human capabilities, cosmopolitanism, particularism, and universalism. Examines nationalism and the particular set of obligations that it generates. Following the theoretical component, the course considers social issues that arise in a global context: (1) the duties to the distant poor, (2) global philanthropy and problems of donee accountability, (3) global health and essential medicines and issues in environmental justice, and (4) issues in international law.	Inclusive

PHIL 5002	Ethics and Public Policy	UG | GR	Offers students from multiple disciplines an opportunity to obtain training in basic methodology in analytic ethics and political philosophy. Focuses on the intersection of ethical analysis and policy evaluation. Organized around different policy areas, such as energy production and distribution, urban planning, healthcare provision, criminal justice, and artificial intelligence. Engages broad issues involving the relationship between ethics and public policy, as well as the scope and limits of legitimate government authority. Looks at specific policies and policy domains and offers students multiple theoretical frameworks for approaching ethical questions embedded in those policy areas.	Inclusive
PHTH 2350	Community and Public Health	UG	Provides students with a basic familiarity with and appreciation of public health and community-based methods for improving the health of populations. Explores the purpose and structure of the U.S. public health system, contemporary public health issues such as prevention of communicable diseases, health education, social inequalities in health and healthcare, public health responses to terrorism, and control of unhealthy behaviors like smoking, drinking, drug abuse, and violence. Prior completion of PHTH 1260 is recommended but not required.	Inclusive
PHTH 2351	Community and Public Health - Global	UG	Offers a basic familiarity with (and appreciation of) public health and community-based methods for improving the health of populations in a global context. Discusses the purposes and structures of the public health systems of the United States and the host country. Explores contemporary public health issues, including the global burden of disease; social determinants of inequalities in health and healthcare; communicable disease detection and management; environmental health risks; nutrition and physical activity; and unhealthy behaviors, such as substance use and violence. Analyzes the application of public health practices and principles to urban health concerns through the use of comparative case studies.	Inclusive
PHTH 2414	Environmental Health	UG	Offers an overview of the field of environmental health, with focus on what the National Institute of Environmental Health Sciences terms "environmental public health." This broad field increasingly involves transdisciplinary approaches that use social science/environmental health collaborations, and it includes the physical, built, and social environments. Asks students to think critically about the economic, scientific, social, and political factors that shape environmental health and to consider how the field is relevant to other public health issues.	Focused

PHTH 4120	Global Perspectives on Discrimination and Health	UG	Explores how discrimination can lead to population-level health disparities among marginalized groups globally. Topics include constructions of social categories, such as race and gender; differences in patterns of disease across populations, both intra- and internationally; how work from various disciplines, such as anthropology, medicine, and public health, inform understanding about how discrimination relates to health; and theoretical models from different disciplines that explain public health disparities.	Inclusive
PHTH 5120	Race, Ethnicity, and Health in the United States	UG | GR	Explores the role of economic, social, and individual factors in explaining racial and ethnic health disparities and examines intervention approaches to eliminate them. Topics include genetic and social constructions of race and ethnicity, measuring race and ethnicity, and the differences in prevalence and patterns of disease across groups; cultural and structural factors that affect healthcare delivery, such as discrimination, racism, and health status; and public health approaches to prevention and improving healthcare delivery.	Inclusive
PHTH 5214	Environmental Health	GR | UG | UC	Introduces the field of environmental health, which encompasses concerns related to physical, built, and social environments. Discusses the tools used to study environmental exposures and diseases. Examines environmental health hazards, the routes by which humans are exposed to hazards, various media in which they are found, and disease outcomes associated with exposures. Offers students an opportunity to become familiar with methods used to conduct environmental health research and with the federal and state agencies responsible for protecting environmental health.	Focused
PHTH 6200	Principles and History of Urban Health	UG | GR	Focuses on the aspects of urban development and life that impact the health and well-being of city residents. Offers students an opportunity to learn about the impact of migration patterns, built environments, occupational stratification, and other cultural and community contextual factors that impact health status and healthcare access. Examines the level of overall health and healthcare found in urban populations, particularly the urban poor, and the disproportionate impact on racial and ethnic minorities in the United States and elsewhere. Considers public policy approaches for addressing the unique health issues of urban areas. Examines urban health issues both from a national and international perspective. Requires permission of instructor for students outside designated programs.	Inclusive

PHTH 6224	Social Epidemiology	GR	Focuses on social epidemiology, which is defined as the study of the distribution and determinants of health in populations as related to the social and economic determinants of health. Includes theories, patterns, and controversies, as well as programs and policies that can be applied to address health inequalities. Readings include articles that situate one dimension of social epidemiology with articles addressing the empirical patterns, address prevailing theories and controversies regarding the causes of the inequalities, as well as address interventions or policies that may be applied to address the inequalities.	Inclusive
PHYS 1132	Energy, Environment, and Society	UG	Seeks to provide nonscience students with a practical knowledge of our present use of the Earth's energy resources and the environmental consequences. Topics include fossil fuels for transportation and electrical power, global warming, nuclear energy, solar energy, wind power, biomass, electric and hybrid vehicles, and air pollution. No previous knowledge of physics is assumed; nevertheless, because of the nature of the subject, a significant part of the course includes simple quantitative reasoning.	Focused
POLS 1160	International Relations	US | UG	Introduces a broad study of international relations, encompassing both theoretical perspectives and empirical knowledge. Reviews the role of states as well as international and nongovernmental organizations in dealing with security and war, terrorism, human rights, trade, globalization, and environmental protection, among other important contemporary issues.	Inclusive
POLS 2345	Urban Policies and Politics	UG	Analyzes the political, administrative, economic, and social dynamics of urban areas. Highlights the diversity of political institutions and practices in American cities. Introduces key policy areas at the city level such as land use, economic development, and education.	Inclusive
POLS 2358	Current Issues in Cities and Suburbs	UG	Introduces students to pressing urban issues: urban sprawl, poverty, education, transportation, economic development, and housing, through an intensive analysis of the Boston metropolitan area. The course is cotaught by university faculty and practitioners in government, community, and nonprofit organizations throughout the metropolitan area. Offers students the opportunity to analyze Boston data, go on outings to see development in progress, talk with urban practitioners about what they do, and conduct research on an urban issue of their choice. CROSS LISTED with SOCL 2358	Inclusive
POLS 2395	Environmental Politics and Policy	UG	Examines the political forces, governmental institutions, socioeconomic factors, and global trends that shape environmental policy at national and subnational levels in the United States. A spectrum of different environmental issues is discussed, with some comparison of policy activity in the U.S., other nations, and at the global level.	Focused

POLS 3100	Gender, Social Justice, and Transnational Activism	UG	Introduces key issues, themes, and debates in feminist transnational theory, practice, and activism in contemporary contexts and how it has changed under socioeconomic, political, and cultural processes of globalization. Examines differences among women relating to race, class, sexuality, national identity, and political economy in reckoning with possibilities for sustainable social justice. Students interrogate the relationship between the local and global; the production of knowledge in different regional spaces; the pragmatics of political mobilization; the varying contours of "social justice"; and other key issues. Offers students an opportunity to discuss the impact of globalization, neoliberalism, and state and intimate violence on gendered politics and relations and to contend with the politics of difference, to debate its challenges, and to imagine possible futures for transnational gender justice.	Inclusive
POLS 3405	International Political Economy	UG	Addresses international political economy and how we can understand the phenomenon of globalization. Introduces the interaction between international politics and international economics in industrial countries and in developing countries. Covers several theoretical approaches to international political economy. Then analyzes some of the classic issue areas of international trade relations; foreign direct investment and outsourcing; the international monetary and financial system and the role of international institutions; debt and financial crises; and poverty and inequality. Concludes with analysis of how international political economy issues relate to governance, development, and the politics of economic reform.	Inclusive
POLS 3487	Politics of Developing Nations	UG	Examines the political, governmental, social, economic, cultural, environmental, and geopolitical dimensions of change in nations regarded as "developing" by international standards. Covers a broad spectrum of types of nations including those in Eastern and Central Europe but pays particular attention to those in Asia, Africa, and Central and South America.	Inclusive
POLS 7325	Contemporary Issues in Third World Development	GR	Examines the major themes in development studies today. Explores approaches to the development and production, population growth, equity and poverty, rural and urban development, health and nutrition, education, and the international context of development assistance. Students considering a development administration concentration should try to take this course as their first in the field of development.	Inclusive
POLS 7346	Resilient Cities	GR	Examines the characteristics of resilient cities, especially those located in coastal regions. Investigates the capacity of cities to respond to major disruptions to their social and ecological systems. Includes extensive use of case studies, such as the 2004 Indian Ocean tsunami and Hurricane Katrina in 2005, as well as readings on cities and social systems. Offers students an opportunity to analyze an urban area and provide recommendations for improving its resilience. POLS 7346 and PPUA 7346 are cross-listed.	Inclusive

PPUA 5231	Transportation Policy	UG | GR	Examines the physical, technological, economic, social, cultural, and political underpinnings of transportation policy in the United States. Topics include intra- and interstate transportation, the comparative economics of different modes of transportation, the impacts of federal and state policies on transportation options, and the long-term effects of those choices on metropolitan development, housing, land use, energy, and the environment. Also involves comparisons with transportation systems in other countries.	Inclusive
PPUA 5233	Contemporary Community Development	UG | GR	Explores the political and social dynamics of community development in urban America, with particular focus on the local politics of housing, economic development, jobs, healthcare, access to services, and community safety. Uses Boston and its region as a laboratory to examine the role of grassroots community groups in shaping their neighborhoods, set within the broader institutional contexts that affect their representation and impacts.	Inclusive
PPUA 5239	Problems in Metropolitan Policymaking	UG | GR	Examines the broad challenges that confront metropolitan areas-defined as including the center city, its immediate suburbs, and the broader periphery-including economic development, land use, transportation, housing, and the provision of basic services. Considers the array of tools available to policymakers, including planning, tax policy, pooling of services, and zoning.	Inclusive
PPUA 5249	Sustainable Urban Coastal Policy	UG | GR	Focuses on the challenges facing coastal cities and the ecosystems on which they depend by exploring both threats such as climate change as well as adaptation measures that promote resilience. Aimed at students interested in the interface of science and public policy and those who wish to gain a deeper understanding of how coupled human-natural ecosystems operate.	Focused
PPUA 5260	Ecological Economics	UG | GR	Introduces methods and tools of ecological economics, an interdisciplinary field that draws on theories, concepts, and tools from the physical, life, and social sciences; unites the relevant aspects of different disciplines; and generates new knowledge that can serve as a basis for investment and policymaking that is responsive to biophysical constraints on economic processes. Illustrates the use of ecological economics with empirical applications. Offers students an opportunity to apply ecological economics to a variety of environmental issues.	Focused
PPUA 5263	Geographic Information Systems for Urban and Regional Policy	UG | GR	Studies basic skills in spatial analytic methods. Introduces students to some of the urban social scientific and policy questions that have been answered with these methods. Covers introductory concepts and tools in geographic information systems (GIS). Offers students an opportunity to obtain the skills to develop and write an original policy-oriented spatial research project with an urban social science focus.	Inclusive

PPUA 5265	Global Urbanization and Planning	UG | GR	Explores the issues facing rapidly growing cities in the developing world. By 2040, more than half of the world's population will live in cities. Analyzes the forces driving a country's economic development and social change. Focuses on urbanization in poorer countries by examining what causes rapid urbanization; why informal economies are so pervasive and how governments approach this issue; the implications increasing popular demands for involvement in decisions have for urban planning and policy; and how governments respond to globalization and with what distributional impacts. Addresses specific sectoral issues and approaches to urban planning and policy in such areas as housing, climate change and hazard preparedness, economic development, transportation, and urban design and public space.	Focused
PPUA 5266	Urban Theory and Science	UG | GR	Studies the evolution of urban science, looking at some seminal theories that seeded the field and the subsequent work they inspired, including the methodologies developed to examine them. For over a century, social scientists and policymakers have sought to better understand cities, asking important theoretical questions, such as: What is a neighborhood? How does a city grow? What is a city in the first place? Culminates in an examination of urban science in the digital age, exploring how modern technological trends, including "big data," are posing new questions and offering new ways to answer them.	Inclusive
PPUA 6201	The 21st-Century City: Urban Opportunities and Challenges in a Global Context	GR	Offers a multidisciplinary examination of the complexities of cities and urbanism in the 21st century. Focuses on U.S. cities, but in an international context. Considers forces that shaped the evolution of cities and metropolitan regions and global forces that are currently transforming cities and regions throughout the world. Explores key questions of urban well-being, rising racial and ethnic inequality, civic engagement, and sustainability. Focuses on the role of urban planning in creating conditions of racial segregation and environmental injustice in cities and its potential role in the current period in undoing this damage.	Inclusive
PPUA 6532	Building Resilience into Local Government	GR	Focuses on often-overlooked management challenges facing local governments: preparing for, responding to, and recovering from disasters, whether natural or human-caused. While disaster planning typically focuses on first responders in fire and police departments, or on federal government agencies like FEMA, much less attention is paid to those local government leaders, from town managers to elected mayors and councilors, who are responsible for how their municipalities handle disaster. Considers what public leaders need to know about building their own capabilities and draws on cases and lessons from local government to build resilience into local communities.	Inclusive

PPUA 7237	Advanced Spatial Analysis of Urban Systems	GR	Builds on skills covered in PPUA 5263. Offers students an opportunity to obtain greater depth in the analysis of urban spatial data focused on several urban systems (including social, built, and natural systems). Focuses on understanding the spatial relationships between various new and large urban datasets relevant to current policy challenges within cities. This is a project-based class.	Inclusive
RMS 5105	Fundamentals of Remote Sensing	GP	Introduces remote sensing principles, datasets, and basic interpretation/analysis. Covers four general categories: physical processes/theories involved in remote sensing, e.g., the nature and properties of electromagnetic radiation and how it is affected by interactions with the atmosphere and earth's surface; different sensor types and platforms, including optical, thermal, and microwave systems, from UAVs to environmental satellites; different applications of remote sensing such as land-use, land-change, vegetation, natural hazards, precision agriculture, and military; and starting methods of remote sensing to analyze images and extract desired information. Software used includes ArcGIS Pro, ArcGIS Online, GIMP, and FOSS.	Inclusive
RMS 6240	Introduction to Radar and LiDAR Remote Sensing	GP	Introduces the techniques and methods of active imaging used in radar and Light Detection and Ranging (LiDAR). Covers the underlying principles of the measurement techniques and the interaction of microwaves and LiDAR signals with natural surfaces and the atmosphere. Regarding radar, the course focuses on the role of synthetic aperture radar (SAR) systems and their application to monitoring aspects of the Earth's surface, including 3-D. Regarding LiDAR, the course introduces the different airborne and satellite systems and applications in terrestrial surfaces, principally for urban applications. Students complete a weekly lab project related to the processing and analysis of these data. Software: ArcGIS; ENVI; LIDAR Analyst; ESA SNAP Toolbox; ASF MapReady; ASF SAR Training Processor; USDA FS FUSION; FugroViewer.	Inclusive
SBSY 5100	Sustainable Design and Technologies in Construction	UG | GR	Covers theory of sustainability and green building procedures; sustainable design and construction practices; use of appropriate materials and systems with low environmental impact for creating energy-efficient buildings; green construction practices, including reducing pollution, emissions, and construction waste; and U.S. Green Building Council's LEED rating system. May be helpful to students preparing for the LEED Green Associate examination.	Focused

SBSY 5200	Sustainable Engineering Systems for Buildings	UG | GR	Focuses on the design and construction of sustainable mechanical/electrical/plumbing (MEP) systems in buildings. Covers MEP documentation, plumbing water supply, HVAC systems, electrical power supply and distribution, lighting systems, low-voltage electrical systems, and estimating and planning for these specialty areas. Addresses sustainable design and construction practices for MEP, including minimization of energy consumption and carbon footprint. Requires one semester of building physics, environmental systems, or equivalent.	Focused
SBSY 5400	Sustainable Building Systems Seminar	UG | GR	Features prominent speakers from the sustainable building design and construction industry to showcase new building technologies, tools, and projects and to discuss national and international trends in the industry. Offers students an opportunity to meet innovators and key players advancing the field of sustainable building systems. May be repeated without limit.	Focused
SCHM 2301	Supply Chain and Operations Management	UG	Focuses on the integrative management of business activities intrinsic to the smooth flow of goods or services, information, and financial transactions across firms from raw materials to the end customer. This collaborative approach creates competitive advantages for all members of a supply chain. Emphasizes the responsibilities of managers regarding decisions concerning the design, operation, and control of supply chains and operations. Considers customers, globalization, corporate strategy, resources, sustainability, ethics, and diversity. Topics covered include customer-centric management; supply chain and operations strategies; process structure and control; and supply, inventory, and quality management. Emphasizes the key role of information technology, logistics network design, supply chain relationships, and process evolution.	Inclusive
SCHM 3301	Global Supply Chain Strategy	UG	Focuses on the managerial activities of those involved in supply chain management operations and planning for companies doing international commerce. Analyzes contemporary issues that affect the design of international supply chain systems, including sourcing, logistics, transactions, risk, sustainability, and ethical considerations. Examines the current status and future prospects of the modes of international transportation as well as international trade and development issues, not only from the corporate perspective but also in terms of government policy.	Inclusive
SCHM 6221	Sustainability and Supply Chain Management	GR	Focuses on how to create sustainable supply chains that profitably yield high-quality, safe products without supply interruption while creating a net benefit for the employees, community, and the environment. Studies how companies measure environmental performance and use the data to motivate associates, suppliers, customers, policy makers, and the public. Also addresses the impacts of global sustainability frameworks and measures.	Focused

SOC 1100	Introduction to Sociology	UC	Examines the basic theoretical perspectives, research methods, and concepts of sociology, including society, culture, institutions, status and role, socialization, social groups, and the role of the individual within society. Considers a number of specific topics to help explore these concepts, including crime, deviance, sexualities, gender, education, and the environment.	Inclusive
SOCL 1245	Sociology of Poverty	UG	Analyzes American poverty in historical perspective, drawing on comparisons with other countries. Critically evaluates sociological research and theories relating to poverty. Considers causes and effects of poverty as well as societal responses to poverty and its consequences. Suitable for students in applied fields, such as nursing, criminal justice, education, allied health, premed, and prelaw.	Inclusive
SOCL 1246	Environment and Society	UG	Examines the social, political, and economic forces behind the global environmental crisis. Topics include such issues as global warming and climate disruption, world resource availability and the global economic crisis, environmental justice and social inequities in the exposure to ecological hazards, science and technology, environmental degradation in the Third World, globalization and unfair trade, state power and the role of the polluter-industrial complex in the United States, the history of the environmental movement, and exemplary environmental policies and programs. This theoretically oriented course also involves practical experience in environmental problem solving.	Focused
SOCL 2485	Environment, Technology, and Society	UG	Focuses on the connections between the development of modern nation-states and the control of nature. Explores the role human societies play in such events as climate change, tsunamis, and droughts. Asks how industrialization and the process of science and technology development are related to our transforming environmental conditions, as well as how the social sciences, the sciences, and engineering are transforming to address these issues. Draws on social theory, environmental history, anthropology/sociology, art/design, and open-source technologies to investigate theoretically and methodologically the sources, experiences of, and solutions for environmental health questions.	Focused
SOCL 3450	Class, Power, and Social Change	UG	Explores theories and research on the institutionalized forms of inequality that have accompanied the rise of advanced capitalism in Western society. Major topics include the competing definitions of class that have developed among social scientists; the relation between class and race in the United States; how class and gender have intersected historically; and the link between workers' movements, political systems, and the forms that capitalist development has assumed in Western Europe and the United States. Students conduct projects in which they explore the conceptions of social justice held by members of subordinate groups.	Inclusive

SOCL 4520	Race, Class, and Gender	UG	Considers the intersection of race, class, and gender in social structure, institutions, and people's lives. Utilizes an interdisciplinary approach to focus on the socially constructed nature of these concepts and how they shape and create meaning in individual lives. Difference with an emphasis on inequality and varying life chances is central for understanding our society and is central to our work. Requires a significant amount of reading. Class format is like a seminar; students are expected to participate, take responsibility, and write a paper. SOCL 4520 and WMNS 4520 are cross-listed.	Inclusive
SOCL 4522	Environmental Justice	UG	Offers students an opportunity to engage in advanced social science research on topics relating to environmental justice, citizen science, and environmental health. Examines various environmental justice topics with the goal of producing a research project or paper. Case studies examined include the impacts of toxic waste dumping on human health and the environment, the role of global climate change in creating new waves of migration around the world, the rise of the Slow Food movement, and the relationship between environmental and data justice. Studies how to redesign research methods, tools, and processes to support environmental justice.	Focused
SOCL 7100	Queer Theory: Sexualities, Genders, Politics	GR	Introduces the core texts and key debates that have shaped queer theory and examines the intersections between queer theory and feminism and critical race theory. Seeks to provide an understanding of expansive and radical contemporary queer politics by analyzing foundational queer and feminist texts, pushing beyond narrow constructions of identity politics, anti-discrimination policy, and rights-based reforms. Engages queer theory by means of a rich philosophical and political interrogation of the meaning and content of "queer." SOCL 7100 and WMNS 7100 are cross-listed.	Inclusive
SOCL 7221	Globalization, Development, and Social Justice	LW | GR	Explores the rise of neoliberal globalization and its impact on local and national communities around the world. Examines complex patterns of resistance, including place-based struggles and transnational social movements. Combines theoretical analysis of global capitalism, development, the politics of resistance, and reformist/radical alternatives with the study of concrete struggles in defense of land, labor and human rights, indigenous cultures and identities, and ecological sustainability.	Inclusive

SOCL 7227	Race and Ethnic Relations	GR	Offers a graduate-level seminar in the sociology of race and ethnic relations. Explores the key social, economic, political, and ideological forces shaping race and ethnic relations in the United States, past and present, and the main theoretical, methodological, and substantive debates in the "race and ethnicity" subfield of sociology. Course topics include, but are not limited to, the conceptual and intellectual foundations of the study of race and ethnic relations; the sources and consequences of ethnic and racial identities; urban poverty and dynamics of racial residential segregation; the role of wealth in creating and perpetuating racial inequality; the "new black middle class"; and contemporary debates regarding racial prejudice, discrimination, and redistributive public policies in the United States.	Inclusive
SOCL 7267	Environment, Health, and Society	GR	Studies contested illnesses, which are diseases or conditions in which there is dispute over environmental causation. For many diseases and conditions attributed to environmental and occupational exposure, the disease or condition and/or its causes are discovered by laypeople in workplaces and communities, with considerable attention to chemical exposures. This seminar synthesizes a diverse set of fields, encompassing environmental sociology, medical sociology, medical anthropology, science studies, history of medicine, history of science, environmental health, community-based participatory research, environmental justice, and environmental public health. Emphasizes both political economic and ideological factors as determinants of contestation. Also examines issues of interdisciplinary collaboration between social scientists and environmental health scientists.	Focused
SOCL 7273	Gender and Social Policy	GR	Provides an introduction to gender and social policy, with emphasis on intersections of inequalities based on class, race, and sexuality. The focus is on equality policies in employment including family-friendly measures and antidiscrimination policies. Includes those focused on child care, poverty, reproduction, and sexuality. Examines the intersections of family, economy, sexuality, and state from a variety of perspectives including cross-national and comparative analysis.	Inclusive
SUEN 6110	Graduate Studio 1: Sustainable Urban Sites	GR	Offers a studio-based graduate-level introduction to design and management of sustainable urban sites. Core topics include fundamental site analysis, formal organization, spatial definition, and site operations. Emphasizes the contextual, programmatic, performative, aesthetic, and experiential aspects of waterfront and brownfield revitalization, with a focus on urban and landscape ecology best management practices (BMPs). Key tools and media are introduced and practiced in increasingly complex applications, including basic drawing, modeling, and design software.	Focused

SUEN 6120	Graduate Studio 2: Sustainable Urban Systems	GR	Offers a graduate-level studio following SUEN 6110 and introducing fundamental landscape planning, design, and strategic management of environmental infrastructures at the urban and regional scale. Core topics include the spatial and operational role in the built landscape of living systems--such as constructed wetlands, urban forests, urban wilds, and managed habitats--and their dynamic relationship to recreation, transit, food, housing, and industrial networks. Emphasizes the integration of constructed ecologies into the cultural landscape around issues of environmental justice. Continues the introduction of key tools and media from SUEN 6110, including advanced digital drawing, modeling, and design communication.	Focused
SUEN 6210	Implementation and Visualization for Urban Environments 1	GR	Offers an intensive introduction to site analysis and manipulation of earthworks, water, and vegetation, with a focus on disturbance regimes within waterfront and brownfield zones. Core topics emphasize the ecological services promoted by the urban environment, including urban soil structure; contouring the urban surface; regional plant communities; and storm water, surge, and tidal flux management. Supports development of implementation skills by training in vector, raster, and 3D modeling software. Constitutes the first half of a two-part sequence and provides the foundation for SUEN 6220.	Inclusive
SUEN 6220	Implementation and Visualization for Urban Environments 2	GR	Constitutes the second half of a two-part sequence and builds upon material in SUEN 6210. Core topics include an introduction to regional landscape ecology in urbanized watersheds. Focuses on landscape-scale systems and soft infrastructure. Introduces GIS and geo-design software as a lens to learn about and visualize change in regional environments. Offers students an opportunity to advance landscape analysis and visualization skills through further training in vector, raster, and 3D modeling software.	Inclusive
SUEN 6310	Cities, Nature, and Design in Contemporary History and Theory	GR	Offers a lecture course presenting a historical overview of evolving cultural, environmental, and technological influences on societal attitudes toward the relationship of cities, nature, and design. Core topics include the emergence of critical theories, aesthetic philosophies, and design typologies in the modern era of industrialization and the subsequent impact of information, participation, and globalization trends on twenty-first-century-designed urban environments.	Inclusive
SUEN 6340	Topics in Urban Environmental Design	GR	Offers a lecture- and discussion-based course focusing on research themes relevant to the MDes-SUEN graduate program curriculum. Topics are developed based upon instructor's research relative to particular urban, ecological, sociological, landscape architectural, or technical subjects. Exposes students to cutting-edge methods of research and practice in designed urban environments. May be repeated up to two times.	Focused

SUEN 7130	Master's Research Studio: Design and the Resilient City	GR	Offers an advanced graduate studio focusing on contemporary landscape and urbanism research strategies. Themes include ecological, economic, and social resiliency in urban environments. Offers students an opportunity to formulate original approaches to design research. Uses integrated analysis, visualization, and conceptualization skills to progress through group and individual exercises with a focus on design thinking for climate change, water rise, public health and security, and other issues of global relevance. Requires the formulation of a design thesis for resilient urban environments, presented and defended in written, oral, and digital formats, which provides the basis for development of individual design proposals in SUEN 7140. Requires permission of the Urban Landscape program for students without a BARCH, BLA, MARCH, MCP, MLA, MRP, MUD, or equivalent. May be repeated once.	Focused
SUEN 7140	Master's Research Studio: Master's Project	GR	Constitutes the second half of the Master's Research Studio sequence. Using the design thesis established in SUEN 7130, offers students an opportunity to formulate proposals for intervention into a specific urbanized environment. Individual projects progress with instructor guidance from schematic phasing through design development, with a focus on change management and vitalization of the ecologic, economic, social, and aesthetic facets of contemporary cities and regions. Requires individual presentation and defense of master's projects in written, oral, and digital formats. May be repeated once.	Inclusive
SUEN 7230	Urban Ecologies and Technologies 1	GR	Offers a workshop-based course as the first in a two-part sequence. Lectures, in-class exercises, and site-based investigation use case-study methods to document ecotechnologies operating in the built environment, with a focus on design and implementation metrics, material life cycle management, funding models, and aesthetic and cultural aspects. Potential topics include green roofs, green walls, bioswales, pervious pavements, constructed wetlands, "complete streets" elements, geosensor networks, alternative waste management, water detention and energy generation methods, and living infrastructure for coastal environments.	Focused
SUEN 7320	Pro-Seminar: Issues in Designed Urban Environments	GR	Offers an advanced graduate seminar examining the forces shaping designed urban environments in contemporary global culture. A diverse range of material from published design criticism to open source social media engagement provides basis for discussion and written and oral presentations. Course themes determined by the instructor parallel the studio sequence SUEN 7130 and SUEN 7140, although discussion topics are broadly presented to engage graduate students from any background. May be repeated up to three times.	Inclusive

THTR 1215	Activism and Performance	UG	Explores the intersection of theatre, politics, and social transformation by studying and experiencing the work of activist theatre artists in both traditional and nontraditional forms, such as docudrama, ritual, dance, street theatre, and community-generated performance. Examines the texts, theories, and practices of international theatre artists committed to ethical reasoning, social change, peace building, human rights, and community empowerment. Culminates in the creation of an original activist performance.	Inclusive
THTR 1236	Introduction to Global Fashion Studies: History, Theory, and Contemporary Practice	UG	Offers students an overview of the most significant and relevant theories on fashion, focusing on the cultural significance of clothing and style. Examines the intersection of fashion and other areas of study including the arts, history, economics, business, sociology, and anthropology. Explores global issues of gender, race, class, identity, image, style, material culture, and sustainability. Examines how populations from several postindustrial nations think about fashion, how globalization impacts their cultures and identities, and how designers and trendsetters are emerging from the new capitals of fashion.	Inclusive
THTR 1237	Introduction to Global Fashion Studies Abroad: History, Theory, and Contemporary Practice	UG	Covers the most significant and relevant theories on fashion and focuses on the cultural significance of clothing and style. Examines the intersection of fashion and other areas of study including the arts, history, economics, business, sociology, and anthropology. Explores global issues of gender, race, class, identity, image, style, material culture, and sustainability. Examines how populations from several postindustrial nations think about fashion, how globalization impacts their cultures and identities, and how designers and trendsetters are emerging from the new capitals of fashion. Taught abroad.	Inclusive
WMNS 2303	Gender and Reproductive Justice	UG	Introduces the social, legal, and economic barriers to accessing reproductive healthcare domestically and internationally. Draws on various theoretical and analytic tools including critical race theory, critical legal theory, sociology of science, human rights, feminist theory, and a range of public health methods. Access to reproductive health services, including abortion, is one of the most contested political, social, cultural, and religious issues today. Covers domestic, regional, and international legal and regulatory frameworks on sexual reproductive health. HIST 2303, SOCL 2303, and WMNS 2303 are cross-listed.	Inclusive
ARCH 5120	Comprehensive Design Studio	UG | GR	Focuses on the materials and making of architecture. Considers architectural connections at all scales, from the nut and bolt to the scale of a door or window to the scale of the whole building and the city. Grounds design proposals upon a tectonic strategy, unlike traditional design studios that produce a schematic design before considering constructional ideas.	Inclusive

ARCH 2240	Architectonic Systems	UG	Introduces construction techniques and precise material realization of buildings as an integral part of architectural design thinking and processes. Uses historical and contemporary architectural precedents to explore the spatial and tectonic interrelationships of the primary constructional systems of wood, masonry, concrete, and steel. Uses a diverse mixture of student learning methods, including in-class lectures and student exercises; group discussions and guest lectures; textbook reading; and the production of construction models, drawings, and diagrams.	Inclusive