

**Boston University  
Sustainability Courses**

Fall 2015 - Spring 2016	Name	<i>A brief description of how the course is focused around sustainability</i>	<i>UG - Undergraduate GR - Graduate</i>	<i>School and department the course is offered under</i>	<i>Notes regarding how the course is being</i>	<i>Count Value of Course</i>	<i>UG &amp; UG/GR Course Count</i>	<i>GR Course Count</i>
Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
CASAH587	Green Design	*Explores sustainability and green architecture from the eighteenth century to present. Charts intersections of nature and built environments through methods from architectural and urban history, history of technology, and environmental history. "Green architecture" examined within historical and spatial context.	UG/GR	CAS History of Art & Architecture		1	1	
CASAN333	Human Population Biology	*Human population biology and ecological adaptations: human demography, life history patterns, population genetics, and physiological adaptability. Topics: population dynamics of human societies, mortality and fertility schedules, evolution and genetics of human life history traits, physiological adaptability, and ecological correlates.	UG	CAS Anthropology		1	1	
CASAN336	Primate Evolutionary Ecology	*Introduction to the various theoretical approaches to understanding the evolutionary ecology of wild primates. Topics include functional anatomy, genetic approaches to mating systems, demography, behavioral ecology, community ecology, and conservation.	UG	CAS Anthropology		1	1	
CASAN363	Food and Water: Critical Perspectives on Global Crises	*The multiple causes and consequences of global food and water crises. Examines production, consumption, and distribution of food, and studies a range of water management systems--and the politics of water--in different parts of the world.	UG	CAS Anthropology		1	1	
CASBI306	Biology of Global Change (EBE)	*The ecological impacts of human activity on terrestrial and aquatic ecosystems. Climate change, forest decline, eutrophication, acidification, loss of species diversity, and restoration of ecosystems. Three hours lecture, three hours lab.	UG	CAS Biology		1	1	
CASBI423	Marine Biogeochemistry (EBE)	*Oceanic nutrient and biogeochemical cycling in the context of the marine response to global change. Links between local and global scales are emphasized. Topics include oceanic productivity, iron limitation, oceanic glacial carbon dioxide budget, biogenic particle fluxes, oceanic glacial-interglacial biogeochemistry.	UG	CAS Biology		1	1	
CASBI448	Biodiversity and Conservation Biology (EBE)	*The study of biological diversity and modern methods to protect endangered plant and animal species. The environment, population, and genetic and human factors that affect the survival of species are examined for temperate and tropical communities, as well as terrestrial and aquatic habitats. Three hours lecture, one hour discussion.	UG	CAS Biology		1	1	
CASBI475	Urban Ecology	*The biophysical environments and ecology of urban settlements. Key topics include the physical environment, patterns in human population growth and development, ecosystem structure and function, global change, urban environment pollution and management, and sustainable urban development. Also offered as CAS GE 475.	UG	CAS Biology		1	1	
CASBI486	Biological Design for Sustainable Development (EBE)	*Study of biological constraints on the problem of human society's relationship with the ecosystems, terrestrial and marine, that sustain it. Case studies combining natural history, ecological theory, dynamical modeling, and experimental design in the search for workable solutions.	UG	CAS Biology		1	1	
CASBI523	Marine Urban Ecology	*Marine Urban Ecology is an emerging, interdisciplinary field that aims to understand how human and ecological processes can coexist in human-dominated systems. Topics, ecosystems, and organisms associated with urbanization in the Greater Boston area. Also offered as CAS GE 523.	UG/GR	CAS Biology		1	1	

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CASEC371	Environmental Economics	*Role of economics in environmental planning. Economic analysis of the causes of pollution and its control through taxes, the use of property rights, and standards. Application of cost-benefit models as an aid in policy decisions affecting the environment.	UG	CAS Economics		1	1	
CASEC571	Energy and Environmental Economics	*Environmental resources and markets characterized from physical, economic, and legal standpoints. Welfare arguments for public sector intervention. Methodologies for policy assessment and simulation analyzed, including project analysis, new technology, evaluation models, deterministic and econometric models.	UG/GR	CAS Economics		1	1	
CASEE195	Earth House Sustainability Practicum 1	*Learn and live sustainability through theory and practice in BU's Earth House. Explore and enact options to enhance sustainability through technology, policy and behavioral change. Recommend specific actions toward achieving the longer-term goal of a carbon-neutral Earth House.	UG	CAS Earth & Environment		1	1	
CASEE196	Earth House Sustainability Practicum 2	*Learn and live sustainability through theory and practice in BU's Earth House. Explore and enact options to enhance sustainability through technology, policy and behavioral change. Recommend specific actions toward achieving the longer-term goal of a carbon-neutral Earth House.	UG	CAS Earth & Environment		1	1	
CASES105	Environmental Earth Sciences	*Geological processes in environmental science; groundwater quantity and quality; geological resource supply and recovery; earthquakes, volcanic eruptions, and other natural hazards; landforms, climate, desertification, glaciation, and ocean circulation patterns. Three hours lecture, two hours lab, including field trips. Carries natural science divisional credit (with lab) in CAS.	UG	CAS Earth Sciences		1	1	
CASES140	Earthquakes, Volcanoes, and Other Natural Disasters	*Explores the large natural events that affect us; examines their geologic causes, as well as their natural and human consequences. Topics include earthquakes, volcanoes, floods, impacts of extraterrestrial objects, and other near-surface disasters, with an emphasis on destructive solid-earth phenomena. Carries natural science divisional credit (without lab) in CAS.	UG	CAS Earth Sciences		1	1	
CASES142	Introduction to Beach and Shoreline Processes	*Coastal processes including tidal currents, wave action, longshore transport, and estuarine circulation; barrier island and spit formation; study of beaches, dunes, and marshes; effects of tectonics, glaciers, and rivers on beaches and coastal morphology. Cape Cod field trip. Carries natural science divisional credit (without lab) in CAS.	UG	CAS Earth Sciences		1	1	
CASES144	Oceanography	*Examines the physical, chemical, and biological processes by which the oceans serve as an agent to accelerate or moderate the pace of global change. Dynamic nature of the oceans on both a short- and a long-term scale is emphasized. Carries natural science divisional credit (without lab) in CAS.	UG	CAS Earth Sciences		1	1	
CASES351	Paleoclimatology and Paleoclimatology	*Examines causes and effects of climate change throughout Earth's history. Topics include ice age climates and glaciations; oceanic history; linkages between Arctic and Antarctic ice sheets; tectonic effects; ice-core, coral, and marine sediment records; El Niño, terrestrial extinctions.	UG	CAS Earth Sciences		1	1	

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CASES423	Marine Biogeochemistry	*Oceanic nutrient and biogeochemical cycling in the context of the marine response to global change. Links between local and global scales are emphasized. Topics include oceanic productivity, iron limitation, and oceanic glacial-interglacial biogeochemistry. Three hours lecture, one hour discussion. (Offered alternate years.)	UG	CAS Earth Sciences		1	1	
CASES510	Introduction to the Atmospheric Boundary Layer	*Covers the basic dynamics of the atmospheric boundary layer (ABL), with a focus on the ABL processes and modeling. Introduces statistical descriptions of turbulent flows in the atmosphere and the connection between the ABL and other environment/climate system processes.	UG/GR	CAS Earth Sciences		1	1	
CASES520	Modes of Climate Variability	*Assesses dynamics/physical mechanisms that drive major modes of climate variability, including: El Nino- Southern Oscillation, Pacific Decadal Oscillation, Atlantic Multidecadal Oscillation, Monsoons, and Annular Modes and investigates evolution of modes through time using paleoclimatic evidence and climate model simulations.	UG/GR	CAS Earth Sciences		1	1	
CASES533	Quantitative Geomorphology	*Quantitative analyses of surface processes that lead to landform evolution and landscape change. Emphasizes study of analytical techniques in understanding specific depositional and erosional processes; models of global landscape change; tectonic and climatic geomorphology.	UG/GR	CAS Earth Sciences		1	1	
CASES539	Coral Reef Dynamics: Shallow Waters, Deep Time	*Tropical reefs-- diverse, complex, and ancient-- exhibit lawful cycles of growth, degradation, and regeneration. Explore these through observations on the Belize Barrier Reef in fossil reef environments and through laboratory experiments. Insights are applied to reef conservation in today's changing world. Also offered as CAS BI 539.	UG/GR	CAS Earth Sciences		1	1	
CASES543	Estuaries and Nearshore Systems	*Physical and ecological processes interacting in estuarine and nearshore environments, including salt marshes, beaches, lagoons, deltas, and in wave- and tide-dominated regimes. Lectures complemented by extensive field work oriented toward individual and group research projects.	UG/GR	CAS Earth Sciences		1	1	
CASGE100	Environmental Change and Sustainability	*Introduces natural and social science concepts that underlie global environmental change and sustainability. Topics include climate change, biodiversity, energy, water, pollution, deforestation, agriculture, population growth. Sustainable development illustrated with ecological footprint based on student's lifestyle. Carries social science divisional credit in CAS.	UG	CAS Geography & Environment		1	1	
CASGE101	Natural Environments: The Atmosphere	*An introduction to weather and climate. Topics include the controls of weather and climate, day-to-day variations in weather, severe storms, climates of the world, urban climate and air pollution, past climates and climatic change, and the impact of climatic variations on society. Carries natural science divisional credit (with lab) in CAS.	UG	CAS Geography & Environment		1	1	
CASGE150	Sustainable Energy: Technology, Resources, Society, and Environment	*Examines the social, environmental, and technological aspects of renewable and nonrenewable energy systems. Discusses energy issues in context of globalization, climate change, and sustainable development. Explores lifestyle and policy decisions related to energy issues. Carries social science divisional credit in CAS.	UG	CAS Geography & Environment		1	1	

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CASGE250	The Fate of Nations: Climate, Resources, and Institutions	*Relationships among environment (e.g. climate), natural resources (e.g. energy, water), and human societies (hunter-gatherers to industrial economies). Principles from thermodynamics, climatology, ecology, and economics used to evaluate the role of environment and resources in the success and failure of societies. Carries social science divisional credit in CAS.	UG	CAS Geography & Environment		1	1	
CASGE302	Remote Sensing of Environment	*Introduction to satellite remote sensing of the Earth environment. Examines the physical basis and methods of the remote sensing process, as well as basics of digital image processing and analysis. Applications in Earth system science and natural resource management are considered.	UG	CAS Geography & Environment		1	1	
CASGE304	Environmentally Sustainable Development	*Traces the emergence of sustainable development as the defining environmental challenge of our times. Surveys and evaluates policies for balancing ecological sustainability and economic development in various parts of the world and at the global level. Also offered as CAS IR 304.	UG	CAS Geography & Environment		1	1	
CASGE307	Biogeography	*Examines the spatial distribution of plants and animals from historical, ecological, and analytical perspectives. Environmental and human influences on species distribution, abundance, and diversity are considered, as are changes resulting from past and projected climate change. Also offered as CAS BI 307.	UG	CAS Geography & Environment		1	1	
CASGE309	Intermediate Environmental Analysis and Policy	*Introduction to economic and environmental theory critical to the formulation and evaluation of environmental and resource policy. This theory is applied to real world analysis of climate change, population growth, oil supplies, energy use, and globalization.	UG	CAS Geography & Environment		1	1	
CASGE310	Climate and the Environment	*Physical principles governing the climate system and its impact on the environment. Emphasis on understanding the physical processes governing energy, mass, and momentum transfer in the ocean and atmosphere. The interaction and feedback of these processes and their impact on the climate system and its variability.	UG	CAS Geography & Environment		1	1	
CASGE375	Introduction to Quantitative Environmental Modeling	*Introduces students to quantitative models of environmental systems. Emphasizes application of quantitative models to environmental problem solving. Includes computer exercises with examples from current environmental issues such as population growth, pollution transport, and biodiversity.	UG	CAS Geography & Environment		1	1	
CASGE394	Environmental History of Africa	*Focus on the African environment and ecological systems over the past 150 years. Topics include climatic change, hydrography, agriculture, deforestation, soil erosion, disease, conservation, famine, and the role of colonialism and government policy in environmental change. Also offered as CAS HI 394.	UG	CAS Geography & Environment		1	1	
CASGE400	Environment and Development: A Political Ecology Approach	*Theory and practice of development with an explicit focus on environmental issues. Introduces history of development and the environment; explores select themes in development and environmental studies (e.g. rural livelihoods, conservation, urbanization, and climate change); and considers alternative development paradigms.	UG	CAS Geography & Environment		1	1	

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CASGE420	Methods of Environmental Policy Analysis	*Introduction to the analysis of environmental policy, the implications of environmental problems for public decision making, the tools available to decision-makers, and their effectiveness, advantages, and disadvantages.	UG	CAS Geography & Environment		1	1	
CASGE425	United States Environmental Policy	*Survey and historical overview of key environmental policies and regulations in the United States. Emphasis on policy development, including formulation and implementation of federal pollution control regulations since the National Environmental Policy Act of 1970. Considers possible future policy needs.	UG	CAS Geography & Environment		1	1	
CASGE456	Terrestrial Ecosystems and the Carbon Cycle	*Explores the past, present, and possible future dynamics of the terrestrial carbon cycle. Key topics include the physical climate system, variability, ecosystem processes, land use issues, and impacts of global change on society.	UG	CAS Geography & Environment		1	1	
CASGE460	Food, Energy, and Water Policy	*Economic and policy analysis of how to manage ecosystems for the provision of food, energy, and water. Introduces cost-benefit analysis, dynamic optimization, and ecosystem service valuation as tools for understanding the optimal management of ecosystems and tradeoffs.	UG	CAS Geography & Environment		1	1	
CASGE475	Urban Ecology	*The biophysical environments and ecology of urban settlements. Key topics include the physical environment, patterns in human population growth and development, ecosystem structure and function, global change, urban environment pollution and management, and sustainable urban development. Also offered as CAS BI 475.	UG	CAS Geography & Environment		1	1	
CASGE510	Physical Principles of the Environment	*Principles and concepts underlying the physical and ecological forces that cause environmental change. Topics include soil erosion, acid rain, thermal pollution, greenhouse effect, stratospheric ozone depletion, and loss of biodiversity.	UG/GR	CAS Geography & Environment		1	1	
CASGE519	Energy, Society, and the Environment	*Focus on applied political economy and the intersection of policy, energy systems, and environmental systems. Project based learning, with an emphasis on energy technology and obstacles to deployment.	UG/GR	CAS Geography & Environment		1	1	
CASGE521	Law for Sustainability	*A survey of the major features of environmental and related law: common law, statutory law, administrative law, and relevant procedural and constitutional issues. Students examine how well these laws work to bring about sustainability. Students read cases and practice advocacy.	UG/GR	CAS Geography & Environment		1	1	
CASGE522	The Development of Sustainable Environmental Responsibility	*In-depth look at how society can address environmental problems: the history of the environmental movement; relevant legal, economic and cultural concepts; and international and emerging concerns. Examines root causes and constructive group processes for crafting a more sustainable world.	UG/GR	CAS Geography & Environment		1	1	
CASGE523	Marine Urban Ecology	*Marine Urban Ecology is an emerging, interdisciplinary field that aims to understand how human and ecological processes can coexist in human-dominated systems. Topics, ecosystems, and organisms associated with urbanization in the Greater Boston area. Also offered as CAS GE 523.	UG/GR	CAS Geography & Environment		1	1	

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CASGE533	Risk Assessment	*Investigates the science behind regulation designed to protect people from environmental hazards, through a practical focus on chemical hazards. Students develop a working knowledge of the risk assessment process and perform simple risk assessments for chemicals in the environment.	UG/GR	CAS Geography & Environment		1	1	
CASGE555	World Oil Markets	*The world oil market is explained using the notion of supply chain. Each stage is described in terms of relevant theories from geology, economics, and politics, and how they interact to generate real-world behavior.	UG/GR	CAS Geography & Environment		1	1	
CASGE560	Energy Transitions	*Survey of energy transitions including animal power to wood to coal to petroleum to electricity; analysis of socioeconomic, political, technological, and environmental causes of energy transitions, and future energy transitions resulting from fossil fuel depletion, climate change, and sustainable development.	UG/GR	CAS Geography & Environment		1	1	
CASGE578	Marine Geographic Information Science	*Introduction to marine geographic information systems and spatial analysis for conservation, management, and marine landscape ecology. Comparative examples from Gulf of Maine and tropics. Solve problems in coastal zoning and marine park design, whale and coral reef conservation. Also offered as CAS BI 578.	UG/GR	CAS Geography & Environment		1	1	
CASGE597	Development and Environment in Latin America	*Provides an empirically based understanding of the social and environmental aspects of economic development in Latin America and the Caribbean (LAC) for purposes of analyzing the numerous trade and development policies that nations in LAC are currently considering. Also offered as CAS IR 597.	UG/GR	CAS Geography & Environment		1	1	
CASGE599	Science, Politics, and Climate Change	*Applies a science and technology studies perspective to climate change science and policy. Examines the relationships between scientific and political systems at global, national, and local levels. Also offered as CAS IR 599.	UG/GR	CAS Geography & Environment		1	1	
CASHI351	Envir Hist Afr	*This course description is currently under construction.	UG	CAS History		1	1	
CASHI589	His Envir & Soc	*This course description is currently under construction.	UG/GR	CAS History		1	1	
CASMR510	Marine Science Policy, Resource Management, and Public Debate	*This course addresses how scientists can target their research toward policy needs and then effectively communicate to the public and policy makers so that science might inform public policy. Taught during the Marine Semester.	UG/GR	CAS Marine Science		1	1	

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CGSNS202	Human Ecology/Global Ecology	*What is the fate of the biosphere and our species? Can humans reconcile economic and technological growth with ecological sustainability? This course examines the impact of one species, Homo sapiens, on the ecosystems of the biosphere, seeking answers to these broad questions. This course includes an investigation of the physical forces that shape global climates and ultimately constrain life on Earth. An examination of the interrelationships between the abiotic and biotic components in ecosystems leads to an investigation of the forces that influence biological diversity. The integrative study of population biology culminates in an investigation of the population dynamics of our own species and the implications the exponential growth of the human population may have on global resources and the biosphere. The foundation in general ecology and human population dynamics allows a serious consideration of the technological impact of humans on the delicately balanced ecosystems of Earth. The interrelationship between science and society is also explored. Four credit hours total: two hours lecture; two hours lab.	UG	CGS Natural Sciences		1	1	
CGSSS102	Modernization : Politics, Economics, and Culture	*CGS SS 102 -- Modernization: Politics, Economics, and Culture This course examines the process of modernization in the West. The historical phenomena of industrialization, the rise of liberal democracy, nationalism, imperialism, and globalization -- all associated with modernization as it took place in Europe in the 19th and 20th centuries -- are examined both in their historical context and through the lens of theories of social change. Through an examination of historical case studies, students will evaluate the impact of these phenomena on the life, institutions, and ways of thinking in the West. Students will also consider the historical legacy of the West's modernization for contemporary global issues such as terrorism and the challenges of development in non-Western societies. One lecture, two discussions, and one additional contact hour as assigned.[4 cr.]	UG	CGS Social Sciences		1	1	
CGSSS103	Politics, Economies, and Social Change in the West: The Ancient World through the Enlightenment	* This interdisciplinary course examines social change in the politics, economies, social structures, and culture of the West from the ancient world through the Enlightenment. Students look at developments in governance, trade, social inequalities, and ideas that gave the West its distinctive character, including the rise of its key institution, democracy. To interpret historical change critically, students are introduced to the social science "toolkit" of analytical concepts. Assignments outside the classroom will encourage students to consider how historical developments have shaped today's world. One lecture, two discussions, and two additional contact hours as assigned. [Open only to students admitted to the CGS January Program.][5 cr.]	UG	CGS Social Sciences		1	1	
ENGE417	Electric Energy Systems: Adapting to Renewable Resources	*This course will present a detailed perspective of electric power systems from generation, transmission, storage, to distribution to end users. Significant emphasis will be placed on methodologies for reliable and efficient transmission and distribution of power over the grid including challenges for adapting to renewable resources such as photovoltaics and wind. Conventional approaches will be presented with emphasis to future technology such as the "smart grid". Analysis of 3-phase power will be presented using numerous examples. Items such as power system stability, security, reliability will be covered. Optimization methods, models, simulation techniques, monitoring and control, grid storage technologies, and micro-grids will also be discussed. Power electronics will be introduced specifically in reference to high voltage circuits. Finally, planning for large numbers of electric vehicles will present new challenges to the effective distribution of power which will be discussed from both centralized and decentralized approaches.	UG	ENG Electrical & Computer Engineering		1	1	

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ENGE543	Sustainable Power Systems: Planning, Operation and Markets	*Breakthroughs in clean energy generation technologies and the advantage of exploiting efficiently the available work in fossil fuels will render electricity the dominant energy form in a sustainable environment future. We review the key characteristics of Electric Power Transmission and Distribution (T&D) networks and the associated planning and operation requirements that ensure supply adequacy, system security and stability. Capital asset investment and operation cost minimization is discussed in a systems engineering context where the assets as well as the dynamic behavior of generators, T&D networks, and loads interact. Recent developments in the formation of competitive wholesale markets at the High Voltage Transmission system level, the associated market participation and clearing rules and the market clearing optimization algorithms are presented and analyzed in terms of their effectiveness in fostering cost reflective price signals and competitive conditions that encourage optimal distributed/not-centralized investment and operating decisions. Finally, we present T&D congestion and supply-demand imbalance related barriers to the widespread adoption of environmentally friendly and economically efficient technological breakthroughs, and propose a systems engineering and real-time retail-market based coordination of centralized as well as decentralized generation, storage and load management resources that is able to achieve desirable synergies and mitigate these barriers. 4 cr	UG/GR	ENG Electrical & Computer Engineering		1	1	
ENGE573	Solar Energy Systems	*This course is designed for first year graduate and senior undergraduate students from engineering disciplines. It is intended to educate students in the design and applications of solar energy technology. It will focus on fundamentals of solar energy conversion, solar cells, optical engineering, photoelectrochemical cells, thermoelectric generators, and energy storage and distribution systems. The course covers solar energy insolation and global energy needs, current trends in photovoltaic energy engineering, solar cell materials science, design and installation of solar panels for residential and industrial applications and connections to the national grid and cost analysis of the overall system. In addition, basic manufacturing processes for the production of solar panels, environmental impacts, and the related system engineering aspects will be included to provide a comprehensive state-of-the-art approach to solar energy utilization. Meets with ENG MS573; students may not take credit for both. 4 cr.	GR	ENG Electrical & Computer Engineering		1		1
ENGE707	Radar Remote Sensing	*Principles of radar systems and radar signal analysis with emphasis on environmental remote sensing. Topics include antenna fundamentals, wave propagation/scattering in various media, the radar equation, radar cross-section, target characteristics, ambiguity function, radar system components, pulse compression techniques, and aperture synthesis. Highlighted systems include ground-penetrating radars, synthetic aperture radar (SAR), weather radars, and incoherent scatter radars, and LIDAR.	GR	ENG Electrical & Computer Engineering		1		1
ENGEK225	Introduction to Energy Conversion and Environmental Engineering	*This class examines the existing state of the world's energy use and its impact on society and the planet. A quantitative framework is provided in order to evaluate current and potential technologies. Individual energy generation, conversion, and end use options are evaluated within this framework. Both renewable energy generation technologies: wind, solar, biomass, and hydro, and conventional sources such as nuclear and fossil fuels will be compared. Energy conversion is discussed with regards to batteries and fuel cells, liquid bio-fuels, and grid level storage systems. These technologies are then put into a social context and their use around the world is discussed. Evaluations are based on homework and class discussions, midterms, and a final. 4 cr. Cannot be used for credit towards an engineering degree.	UG	ENG Engineering Core		1	1	



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ENGEK335	Introduction to Environmental Engineering	*This course provides a technical introduction to a wide range of environmental engineering topics to quantitatively understand and analyze environmental problems. Topics covered include mass and energy balance for analyzing environmental engineering concepts, population growth, models for resource consumption and risk analysis, energy systems, air pollution and prevention strategies, water quality assessment and supply issues, drinking and waste water treatment, solid waste treatment and management strategies, and resource recovery and recycling. Relevant existing laws and regulations are also reviewed in the context of the topics covered. 4 cr.	UG	ENG Engineering Core		1	1	
ENGEK408	Introduction to Clean energy Generation and Storage Technologies	*This course covers a wide variety of modern energy generation and storage technologies. The engineering principles that govern thermomechanical, thermoelectric, photovoltaic and electrochemical energy conversion processes will be discussed along with the challenges of hydrogen storage and hybrid batteries. The consequences of using renewable energy resources such as solar, hydrogen, biomass, geothermal, hydro, and wind versus non-renewable fossil fuels and nuclear resources will also be covered.	UG	ENG Engineering Core		1	1	
ENGEK546	Assessment of Sustainable Energy Technologies	*Critical to launching new energy ventures and implementing new energy policies is developing a broad understanding of how technically feasible the proposed project/technology in meeting the economic, environmental, and end-use requirements. This course will provide students with the background needed to assess the potential for energy efficiency and effectiveness of different technologies, the related economics, as well as identify the key technical risks in emerging technologies. Examples will be drawn from a variety of emerging technologies such as solar photovoltaics, fuel cells, advanced transportation technology, as well as conservation options such as motors, cogeneration, building automation and HVAC. This course will also address evaluating the life cycle implications of emerging technologies, including manufacturing issues, end-of-life, as well as estimating performance. 4cr. 2nd sem.	UG/GR	ENG Engineering Core		1	1	
ENGM533	Energy Conversion	*Thermodynamic and mechanical aspects of modern conventional energy conversion systems, including steam electric power plants, gas turbine and internal combustion engines, and refrigeration systems. Combined cycle and cogeneration are also considered, as well as economic and environmental aspects of energy conversion. Includes design project.	UG/GR	ENG Mechanical Engineering		1	1	
ENGM535	Green Manufacturing	*Provides a systems view of the manufacturing process that aims to efficiently use energy, water, and raw materials to minimize air and water pollution and generation of waste per unit of the manufactured product. Specifically, the course will discuss methods to maximize yield and minimize waste effluents in processes, ways to devise treatment strategies for handling manufacturing wastes, innovative ways to decrease energy consumption in manufacturing, by-product use and product recycling, and policies that encourage green manufacturing. Meets with ENGM535. Students may not receive credit for both.	UG/GR	ENG Mechanical Engineering		1	1	

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ENGM543	Sustainable Power Systems: Planning, Operation and Markets	*Breakthroughs in clean energy generation technologies and the advantage of exploiting efficiently the available work in fossil fuels will render electricity the dominant energy form in a sustainable environment future. We review the key characteristics of Electric Power Transmission and Distribution (T&D) networks and the associated planning and operation requirements that ensure supply adequacy, system security and stability. Capital asset investment and operation cost minimization is discussed in a systems engineering context where the assets as well as the dynamic behavior of generators, T&D networks, and loads interact. Recent developments in the formation of competitive wholesale markets at the High Voltage Transmission system level, the associated market participation and clearing rules and the market clearing optimization algorithms are presented and analyzed in terms of their effectiveness in fostering cost reflective price signals and competitive conditions that encourage optimal distributed/not-centralized investment and operating decisions. Finally, we present T&D congestion and supply-demand imbalance related barriers to the widespread adoption of environmentally friendly and economically efficient technological breakthroughs, and propose a systems engineering and real-time retail-market based coordination of centralized as well as decentralized generation, storage and load management resources that is able to achieve desirable generation and mitigate these barriers.	UG/GR	ENG Mechanical Engineering		1	1	
ENGM573	Solar Energy Systems	*This course is designed for first-year graduate and senior undergraduate students from engineering disciplines and is intended to educate students in the design and application of solar energy technology. It will focus on fundamentals of solar energy conversion, solar cells, optical engineering, photoelectrochemical cells, thermoelectric generators, and energy storage and distribution systems. The course covers solar energy insolation and global energy needs, current trends in photovoltaic energy engineering, solar cell material science, design and installation of solar panels for residential and industrial applications and connections to the national grid and cost analysis of the overall system. In addition, basic manufacturing processes for the production of solar panels, environmental impacts, and the related system engineering aspects will be included to provide a comprehensive state-of-the art approach to solar energy utilization. Meets with ENG EC573; students may not take credit for both. 4 cr.	UG/GR	ENG Mechanical Engineering		1	1	
GRSBI648	Biodiversity and Conservation Biology	*The study of biological diversity and modern methods to protect endangered plant and animal species. The environment, population, genetic, and human factors which affect the survival of species examined for temperate and tropical communities, as well as terrestrial and aquatic habitats. Three hours lecture, one hour discussion.	GR	GRS Biology		1		1
GRSBI671	Survey of Ecology, Behavior, Evolution, and Marine Biology	*Introduces graduate students to current faculty and research in ecology, behavior, evolution, and marine biology. Students and faculty share expertise and establish collaborations, helping the Department of Biology to leverage its most important asset: intellectual capital.	GR	GRS Biology		1		1
GRSBI675	Urban Ecology	*This course description is currently under construction.	GR	GRS Biology		1		1
GRSBI686	Biological Design for Sustainable Development	*Study of biological constraints on the problem of human society's relationship with the ecosystems, terrestrial and marine, that sustain it. Case studies combining natural history, ecological theory, dynamical modeling, and experimental design in the search for workable solutions.	GR	GRS Biology		1		1
GRSBI946	Research in Forest Ecology	not available	GR	GRS Biology		1		1

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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
GRSE623	Ecosystem Biogeochemistry	*Nutrient and biogeochemical cycles in terrestrial, freshwater, and marine ecosystems; global biogeochemistry. Topics include anthropogenic effects on ecosystem cycles and productivity, wetland ecology and biogeochemistry, ecosystem restoration, ocean productivity, climate change and temperate, tropical, and aquatic ecosystems, oceans and the global CO <sub>2</sub> budget, marine sediment chemistry. (Offered alternate years.)	GR	GRS Earth & Environment		1		1
GRSE671	Geochemistry	*(Meets with CAS ES 371.) Chemical features of Earth and the solar system; geochemical cycles, reactions among solids, liquids, and gases; radioactivity and isotope fractionation; water chemistry; origins of ore deposits; applications of geochemistry to regional and global problems.	GR	GRS Earth & Environment		1		1
GRSGE600	Environment and Development: A Political Ecology Approach	*Theory and practice of development with an explicit focus on environmental issues. Introduces history of development and the environment; explores select themes in development and environmental studies (e.g. rural livelihoods, conservation, urbanization, and climate change); and considers alternative development paradigms.	GR	GRS Geography & Environment		1		1
GRSGE620	Methods of Environmental Policy Analysis	*Introduction to the analysis of environmental policy, the implications of environmental problems for public decision making, the tools available to decision-makers, and their effectiveness, advantages, and disadvantages.	GR	GRS Geography & Environment		1		1
GRSGE625	United States Environmental Policy	*Survey and historical overview of key environmental policies and regulations in the United States. Emphasis on policy development, including formulation and implementation of federal pollution control regulations since the National Environmental Policy Act of 1970. Considers possible future policy needs.	GR	GRS Geography & Environment		1		1
GRSGE656	Terrestrial Ecosystems and the Carbon Cycle	*Explores the past, present, and possible future dynamics of the terrestrial carbon cycle. Key topics include the physical climate system, variability, ecosystem processes, land use issues, and impacts of global change on society.	GR	GRS Geography & Environment		1		1
GRSGE660	Food, Energy, and Water Policy	*Economic and policy analysis of how to manage ecosystems for the provision of food, energy, and water. Introduces cost-benefit analysis, dynamic optimization, and ecosystem service valuation as tools for understanding the optimal management of ecosystems and tradeoffs.	GR	GRS Geography & Environment		1		1
GRSGE712	Reg Enrgy Model	not available	GR	GRS Geography & Environment		1		1
GRSGE715	Global Change Initiative: Education and Research	*Interdisciplinary perspectives on global change issues, combined with focus on how to develop effective classroom lessons to address these issues. GLACIER fellows are assigned readings from various disciplines and perspectives on global change and required to develop lesson plans.	GR	GRS Geography & Environment		1		1
GRSGE798	Global Development Capstone	*Capstone course for MA students in Global Development Policy and Global Development Economics. Students, working in groups, design and carry out an interdisciplinary policy analysis comparable to those performed for a government or nonprofit agency. Also offered as GRS EC 798 and IR 798.	GR	GRS Geography & Environment		1		1
GRSHI751	Envir Hist Afr	*This course description is currently under construction.	GR	GRS History		1		1

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GSMEM775	Global Environ	not available	GR	QST Management		1		1
GSMOB835	Leading Sustainable Enterprises	*Leading and managing a sustainable and successful 21st Century Enterprise requires updated context, skills, frameworks, and vernacular. Pressures resultant from population growth and increasing consumerism have upended past assumptions related to limits. While the 19th century was characterized by limits of human capital and the 20th century was limited by financial capital, the 21st century will be limited by natural capital. Shared and improperly priced renewable resources (such as the air, the oceans and clean water) are being threatened by climate change and a host of other challenges. Other renewable resources (such as forests and fish stocks) are being consumed faster than they can be replenished and non-renewable resources (such as oil and metals) are being depleted faster than any time in human history. At the same time, transparency (enabled by technology), new modes of communication, and an ever increasing number of NGOs, are elevating consumer expectations of corporations. Finally, regulation is expanding in response to market inefficiencies and as a means of addressing externalities. While all of these changes are happening outside the walls of the corporation, they are so profound that they require a reexamination of the past modes of leadership and management inside the Enterprise. For starters, leaders must reconsider the mission of their enterprise and identify and prioritize the stakeholders that the corporation is committed to serve. In addition, leaders will be challenged to reimagine the appropriate framework for the corporation.	GR	QST Organizational Behavior		1		1
GSMIS836	Foundations of Environmental Sustainability	*The changing relationship between business and the natural environment offers both challenges and opportunities for firms. In this course we will discuss many facets of business, including financing, risk management, measurement, competitive positioning, innovation, and strategy in the context of increasing pressures for improved environmental sustainability. The course will be interactive and discussion-oriented, with a case discussion in most class sessions, supplemented by debates, simulation exercises, visitors, student presentations, discussions of recent news articles, and mini-lectures. The course is appropriate for all students interested in how demands for sustainability will continue to change the business environment.	GR	QST Strategy & Innovation		1		1
GSMIS870	Strategies for Sustainable Development	*SI870: Strategies for Sustainable Development is an advanced strategy course that explores the analysis, conceptualization and development of innovative, market-based solutions for sustainable development challenges for a future defined by natural resource, environmental and biological constraints. Specifically, the course the explores 1) the complex global context for sustainable development, 2) key stakeholders, 3) the emergent strategy (entrepreneurial) development process, method and practice, and 4) the structure, governance, and financing/microeconomics of new, emergent organizational forms and business models for sustainable development, such as cross-sector cooperative alliances, public-private partnerships with a particular focus multi-stakeholder platforms. Note: Market-based solutions for sustainable development are economically self-sustaining alternatives to traditional governmentally-funded or aid-based programs for addressing systemic social, economic and environmental problems. These solutions engage public, private, NGO and civil society actors and employ a variety in emerging organizational forms (both for profit and non-profit), innovative business models and strategies to deliver effective solutions at scale. The course takes a stakeholder-oriented, system-of-systems approach to the issues of sustainable development with a specific focus on the network of interrelated actors and interdependent issues within the class of "wicked problems"; .i.e. social, economic or environmental problems that are difficult to frame, scope and seemingly insoluble.	GR	QST Strategy & Innovation		1		1

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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
KHCBI101	Climate Change in Massachusetts	*Henry David Thoreau spent decades observing and recording the natural history of Concord and other sites in Massachusetts. This course will place his work within the context of modern climate change research. Readings will include both Thoreau's works as well as research papers comparing the observations of Thoreau and other historical data sets with modern observations. In order to gain an appreciation of the process whereby science is communicated to the public, attention will also be given to the way in which these scientific papers have been presented in the magazines and newspapers. During weekend field trips, we will visit sites where Thoreau's research was carried out; including Walden Pond, the Minute Man National Historical Site, the Great Meadow Wildlife Sanctuary, and the Estabrook Woods. Other possible field sites include the Blue Hills Observatory (origin of the oldest continuous weather records in the U.S.), the Concord Free Library and the Thoreau Institute (where Thoreau documents are held), the Arnold Arboretum in Jamaica Plain (where old photographs and plant specimens are housed), Manomet Bird Observatory (on a day when birds are being banded), Mt. Auburn Cemetery (where large numbers of bird watchers track bird movements), and the Massachusetts State Laboratory (where mosquito numbers are tracked). CAS Divisional Assignment: NS without lab; KHC Assignment: STEM	UG	KHC Biology		1	1	
KHCPY101	Energy	*Ours is an energy intensive society. American energy consumption per capita is now over ten times what it was when our nation was founded, and the rest of the world is rapidly following our example. This is leading to increasingly severe worldwide problems such as the growing competition for scarce resources including fossil fuels (today's principal sources of energy by far) but also fresh water, agricultural land and mineral resources. Many countries face ever more severe problems of pollution, congestion, drought, and the growing effects of global climate change. The goals of this seminar are to examine the physical principles underlying the production, distribution and consumption of energy and to use this knowledge to explore and discuss such issues as energy conservation, public transport, the so-called hydrogen economy, electric and hybrid vehicles, nuclear power and carbon sequestration, as well as to evaluate the feasibility of various alternative sources of energy sources. During the Seminar, we anticipate freewheeling conversations relating to various energy-related issues, such as: Are we running out of oil? What is the evidence for anthropically caused Global Warming? What can be done to prevent (or prepare for) it? Can part or all of the problem be solved by alternative power sources? Is it feasible to capture and sequester the CO2 produced by fossil power plants? How important is it to conserve energy?	UG	KHC Physics		1	1	
LAWJD722	Environmental Justice Law	*Environmental Justice can be defined as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws and policies. Over the last two decades efforts to secure environmental justice have become important features of environmental policy and activism. This course will explore why environmental justice concerns have arisen, and what legal mechanisms may be used to address them. We will identify current situations where claims of environmental injustice might be made, and examine how existing legal tools, including the 1964 Civil Rights Act and federal environmental statutes, might be applied to deal with them. The final grade will be determined on the basis of two short papers, a final exam, and class participation. There is no prerequisite for this course. GRADING NOTICE: This course offers the CR/NC/H option with the permission of the instructor only. OFFERING PATTERN: This class is not offered every year. Students are advised to take this into account when planning their long-term schedule.	GR	LAW Juris Doctor		1		1

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LAWJD766	Environmental Law Practicum (C)	*Through the Environmental Law Practicum, J.D. students receive credit for completing environmental law-related legal projects for a Boston-based environmental law organization. Projects will vary in scope and content based on student interest and the needs of the partnering organization. In Spring 2017, students will work on environmental law projects on behalf of the Conservation Law Foundation and Alternatives for Community and Environment. Project topics will include clean energy, clean water, and environmental justice, which concerns the intersection of civil rights, fundamental fairness, and environmental policy. Students may also have the opportunity to work on litigation-related matters. Throughout the semester, students will work both under the supervision of an attorney at the partner organization and under the supervision of Professor Pam Hill. Practicum students must attend six class meetings with Professor Hill. Depending on the nature of the project and as determined at the outset of the semester, students will receive either 1 or 2 graded credits. Each credit requires students to spend a minimum fifty hours on practicum work during the semester. This class is restricted to students who have applied to and been accepted into the Practicum. NOTE: This course satisfies the upper-class professional skills requirement.	GR	LAW Juris Doctor		1		1
LAWJD779	Topics in Environmental Law: Current Hot Button Issues (S)	*This seminar will examine current hot button issues and controversies in environmental law with an emphasis on their legal and policy implications. Examples may include greenhouse gas emissions from power plants and other fossil fuel sources/users; NIMBY fights over the location of pipelines and wind farms; and the respective environmental impacts of wind, solar, biomass and other alternative energy sources, coal, oil, nuclear or natural gas powered-energy. Through stakeholder analysis, role playing and decision making exercises involving actual cases, students will gain a focused understanding of key federal environmental laws, regulations and policies and learn how practicing lawyers apply the law to a complex set of facts where there are no black and white answers. The course will be conducted in seminar format which means that active participation in discussion and in class exercises will count for a major part of the final grade. Several written projects, collaborations and presentations will be required throughout the semester. Experience in Administrative Law is preferred but not required. NOTE: This seminar does not satisfy the Upper-class Writing Requirement. GRADING NOTICE: This course does not offer the CR/NC/H option. ** A student who fails to attend the initial meeting of a seminar (designated by an (S) in the title), or to obtain permission to be absent from either the instructor or the Registrar, may be administratively dropped from the seminar. Students who are on a wait list for a seminar are required to attend the first seminar meeting to be considered for enrollment.	GR	LAW Juris Doctor		1		1
LAWJD833	Environmental Law	*This is an introductory survey course in environmental law. Topics include clean air, clean water, hazardous waste regulation and cleanup, and the protection of endangered species. Administrative Law is recommended but not required as a prerequisite.	GR	LAW Juris Doctor		1		1
LAWJD855	Land Use	*This course will provide participants with a detailed review of the law governing local, regional, and state-wide land use planning and land use controls. Strong emphasis will be placed on the legal and policy connections between land use planning, land use law, and natural resources protection. We will focus in detail on numerous traditional land use planning controls (zoning, subdivision control, and health regulations) but spend considerable time analyzing the legal issues involved in the use of more innovative land use regulations (transfer of development rights, exactions, impact fees, and development agreements). Participants will become well-versed in all aspects of local, regional, and state land use controls and permitting procedures for residential and non-residential development. Grades will be based on class attendance and a final examination. GRADING NOTICE: This course does not offer the CR/NC/H option.	GR	LAW Juris Doctor		1		1

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LAWXB970	Environmental Law	*This course takes a hybrid approach to teaching environmental law. This course will: (1) provide an overview of some of the major environmental statutes in the United States; (2) address the variety of regulatory tools and concepts that can be used to prevent environmental harm, focusing on the proper match between regulatory tool and environmental harm; and (3) discuss the role of other disciplines (e.g., science) and alternative means (e.g., public awareness) to facilitate changes in environmental policy.	GR		LAW		1		1
LAWXB973	Energy Regulation and the Environment	*Energy is the fundamental necessity of civilization and, indeed, of life itself. And, yet, we cannot repeal the Second Law of Thermodynamics, which teaches that in a closed system such as Planet Earth, the use of energy will gradually transform everything of value into a state of useless entropy. Fortunately, as global climate change acquaints us viscerally with this ineluctable reality and its grim implications, we have a legal and regulatory framework that can be pressed into service to address the entropy challenge without unnecessarily sacrificing public safety and welfare. This intermediate level course is intended to provide students with an intimate familiarity with that legal and regulatory framework. (pre-requisite: Energy Law & Policy in a Carbon-Constrained World)	GR		LAW		1		1
METBI303	Ecology (EBE)	*Basic principles of ecology, population dynamics and behavior, interrelationships of plants and animals and their physical and chemical environment. Structure and function of ecosystems and community dynamics. Laboratory course. Three hours lecture, three hours lab.	UG		MET Biology		1	1	
METML589	Nature's Past: Histories of Environment and Society	*Historians' approaches to environmental history, including human elements of technology, demography, local knowledge, political ecology, and social organization. Geographical foci include North America, Atlantic World, Asia, and Africa.	UG/GR		MET Gastronomy		1	1	
METML720	Food Policy and Food Systems	*This course presents frameworks and case studies that will advance participants' understandings of U.S. and global food systems and policies. Adopting food-systems and food-chain approaches, it provides historical, cultural, theoretical and practical perspectives on world food problems and patterns of dietary and nutritional change, so that participants acquire a working knowledge of the ecology and politics of world hunger and understand the evolution of global-to-local food systems and diets. Global overview of world food situations will be combined with more detailed national and local-level case studies and analysis that connect global to local food crisis and responses.	GR		MET Gastronomy		1		1
METML721	US Food Policy and Culture	*This course overviews the forces shaping U.S. food policies, cultural politics, diet, and nutrition situations in the twenty-first century. After reviewing the history of U.S. domestic food policy, course discussions consider globalization, new agricultural and food technologies, new nutrition knowledge, immigration, and "sustainable-food" ideology as drivers of American dietary and food-regulatory change. "Food systems," "food chains," and "dietary structure" provide the major analytical frameworks for tracing how food moves from farm to table, and the role of local through national government and non-government institutions in managing these food flows.	GR		MET Gastronomy		1		1

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METUA617	Actionable Sustainability	*Sustainability generally refers to the ability of "systems" to be maintained such that they remain viable over long periods of time. As much as achieving the perfect sustainable equilibrium may be the ideal, it is important to recognize that there will be competing and conflicting interests, especially within complex hierarchical social, economic and ecological systems, particularly in light of ongoing climatic change. This field intensive course draws on the practices and theories of sustainability and climate change to understand what sustainability can mean in different contexts, and, more important, how nuanced, sustainable solutions can be achieved under varying conditions and in different systems. With an emphasis on the urban environment, the course will consist of projects in which students will identify, analyze, and develop practical proposals to real world issues. This course is intended for a wider audience from a range of disciplines.	GR	MET Urban Affairs		1		1
METUA629	Urbanization and the Environment	*Interrelationships between physical environment and processes of urbanization. Case studies develop historical perspective on social, economic, and physical aspects of the quality of urban life. Special attention to the preparation of environmental impact statements and assessment of urban environmental quality.	GR	MET Urban Affairs		1		1
SARHS345	Global Environmental Public Health	*Environmental health is associated with recognizing, assessing, understanding and controlling the impacts of people in their environment and the impacts of the environment on the public health. The complexity of the problems requires multidisciplinary approaches. This course will provide an introduction to the principles, methods, and issues related to global environmental health. This course examines health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems internationally. Topics include how the body reacts to environmental pollutants; physical, chemical, and biological agents of environmental contamination; vectors for dissemination (air, water, soil); solid and hazardous waste; susceptible populations; bio-markers and risk analysis; the scientific basis for policy decisions; risk communication; and, emerging global environmental health problems.	UG	SAR Health Science		1		1
SMGS1453	Envrnl Sstnblty	*This course description is currently under construction.	UG	QST Strategy & Innovation		1	1	
SPHEH725	Analytical Methods in Environmental Health	*Students in this course learn the skills, methods and critical thinking framework necessary for upper level environmental health courses and for success as public health professionals. Environmental Health is a field of public health in which environmental hazards and health risks to populations are identified, assessed and managed through a data-driven process. This course extends the depth of concepts taught in EH717 and should be taken concurrently for students entering in the fall semester. We take the opportunity to partner with communities to design and conduct a data collection and analysis effort that is suitable for rigorous analyses with the many tools commonly used in environmental health.	GR	SPH Environmental Health		1		1



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SPHEH735	The Environmental Determinants of Infectious Diseases	*The environment is a key determinant of infectious disease burden in a population. This course presents an overview of how existing and, in particular, changing global environmental factors can affect the transmission cycle of infectious pathogens in both developing and industrialized countries. It examines issues of water, sanitation and hygiene in resource-limited settings that contribute enormously to childhood death due to infectious diarrheal diseases, and to morbidity and mortality due to neglected tropical diseases (NTDs). It also explores how environmental alterations and natural disasters can result in ecological changes that impact on the maintenance and spread of infectious diseases in a community. Sustainable environmental intervention strategies to reduce the burden of infectious diseases will be considered for each of the major diseases covered in class. This course is appropriate for MPH students and undergraduates, especially those interested in biology, global health, and the environment.	GR	SPH Environmental Health		1		1
				SPH Environmental Health				
SPHEH745	Wastewater and Health/Sustainable Sanitation	*This course provides students with an overview of the relationship between human health, ecological health, and sanitation. The different disposal and treatment methods for human excreta are described in their historical and political contexts. Related topics such as the land application of sewage sludge, the role of government agencies, nongovernmental organizations, and public health experts are presented as well as practical solutions toward sustainable sanitation. This course involves a group project and a paper.	GR	SPH Environmental Health		1		1
SPHEH757	Environmental Epidemiology	*This course introduces students to epidemiologic investigations of environmental health problems. Topics include both traditional and innovative subjects and strategies, such as the health effects associated with air and water contaminants, toxic waste sites, lead, and radiation, as well as environmental exposures that have received attention only recently, such as endocrine disruptors and electromagnetic fields. The course emphasizes epidemiologic methods, particularly exposure assessment, modeling, cluster analysis, and sources of bias. Students gain experience in the critical review and design of related epidemiologic studies. This course counts as concentration credit for epidemiology concentrators.	GR	SPH Environmental Health		1		1
SPHEH805	Environmental Health Science, Policy and Law	*This course uses a case-study approach to discuss current and historic controversies in environmental and occupational health policy making. Our specific focus is on the examination of how scientific information (e.g., risk assessments, exposure analyses, epidemiologic studies, clinical case reports,) is used (or is not used) in policy decisions. Students will learn how environmental health laws and regulations are made and challenged, and gain experience looking up laws, regulations and court decisions. Case studies feature international treaties, federal and state court cases, laws, regulations, and policies. Topic areas include air and water quality, hazardous waste, environmental justice, worker safety, and the precautionary principle.	GR	SPH Environmental Health		1		1
SPHEH914	Environmental Health Doctoral Seminar	*This is a doctoral-level seminar course. A new central topic in environmental health is covered each semester. Topics include carcinogenesis/mutagenesis, vaccine development and application, molecular epidemiology, microbial pathogenesis, etc. Each semester proceeds from an historical perspective, and includes both basic science and policy issues. Students are assigned readings from the literature for presentation as a formal lecture, with related discussion to be led by the student.	GR	SPH Environmental Health		1		1

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Fall 2015 - Spring 2016	Name	<i>A brief description of how the course is focused around sustainability</i>	<i>UG - Undergraduate</i>	<i>School and department the course is offered under</i>	<i>Notes regarding how the course is being</i>	<i>Count Value of Course</i>	<i>UG &amp; UG/GR Course Count</i>	<i>GR Course Count</i>
						<i>Total Sustainabili ty Courses</i>	<i>UG &amp; UG/GR Course Total</i>	<i>GR Course Total</i>
Totals						114	74	40

**Boston University  
Sustainability Courses**

Fall 2015 - Spring 2016	Name	<i>A brief description of how the course is focused around sustainability</i>	<i>UG - Undergraduate GR - Graduate</i>	<i>School and department the course is offered under</i>	<i>Notes regarding how the course is being</i>	<i>Count Value of Course</i>	<i>UG &amp; UG/GR Course Count</i>	<i>GR Course Count</i>
Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate

**Boston  
University  
Courses that  
Include  
Sustainability**

Fall 2015 - Spring 2016	Name	<i>A brief description of how the course is focused around sustainability</i>	<i>UG - Undergraduate GR - Graduate</i>	<i>School and department the course is offered under</i>	<i>Notes regarding how the course is being counted</i>	<i>Count Value of Course</i>	<i>UG &amp; UG/GR Course Count</i>	<i>GR Course Count</i>
Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
CASAA207	Sociology of Race and Ethnicity	*Social definition of race and ethnicity. The adjustment of different ethnic groups and their impact upon U.S. social life. How prejudice and discrimination create class identities and how caste relations have affected patterns of integration during the nineteenth and twentieth centuries. Carries social science divisional credit in CAS. Also offered as CAS SO 207.	UG	CAS African American Studies		1	1	
CASAA310	History of the Civil Rights Movement	*Through historical scholarship, oral history, documentary film, and excursions to local historic sites, this course explores how African Americans created a dynamic and multifaceted movement for civil and human rights from the 1950s to the present. Also offered as CAS HI 299.	UG	CAS African American Studies		1	1	
CASAA363	Race and the Development of the American Economy: A Global Perspective	*Surveys the economic history of African Americans within the context of the development of the American and global economies. Topics include the economics of slavery; race and industrialization; the Great Migration; anti-discrimination legislation; and the historical origins of contemporary racial inequalities. Also offered as CAS EC 363.	UG	CAS African American Studies		1	1	

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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
CASAH201	Understanding Architecture: Theoretical Approaches to the Built Environment	*Introduces a range of approaches to the analysis of architecture. Learn how scholars and architects have interpreted meaning in architecture through the rubrics of art, structure, language, nonverbal communication, experience, sustainable design and culture.	UG	CAS History of Art & Architecture		1	1	
CASAH205	History of World Architecture	*An examination of patterns in world architecture and urbanism from pre-history to the twentieth century. Lectures and discussions address questions of program, spatial composition, structure, technology, iconography, sustainable design, and cultural context for the examples considered. Carries humanities divisional credit in CAS. This course cannot be taken for credit in addition to the course with the same number that was previously entitled "Architecture: An Introduction."	UG	CAS History of Art & Architecture		1	1	
CASAH580	Architectural Technology and Materials	*An introduction to the history of architectural construction, technologies, and materials, and their consequences in the built environment. Students receive a practical understanding of the building process and of its social and cultural contexts. Analysis of environmental impact of building materials and technology.	UG/GR	CAS History of Art & Architecture		1	1	
CASAH584	Greater Boston: Architecture and Planning	*Examines the buildings, development patterns, and open space planning of greater Boston, with particular emphasis on the nineteenth and twentieth centuries. Weekly visits to neighborhoods and buildings throughout the city are combined with independent research projects for each member of the seminar.	UG/GR	CAS History of Art & Architecture		1	1	
CASAM202	What's Boston?	*What's Boston? explores Boston's complex urban and natural world. University faculty share cutting-edge research, focusing on Boston as a PLACE and a guiding IDEA, introducing the perspectives of disparate scholarly disciplines. Discover where you stand and where you might go! No prerequisites. This course welcomes first-year students and is open to all BU undergraduates. Carries either humanities or social science divisional credit in CAS.	UG	CAS American Studies		1	1	
CASAM376	Housing America	*What do dwellings say about the diversity of American experience? For over four centuries and across a continent, wealth and poverty, family and community, taste and technology have all shaped the meaning of home. Illustrated lectures supplemented by field trips. Also offered as CAS AH 376.	UG	CAS American Studies		1	1	
CASAM546	Places of Memory: Historic Preservation Theory and Practice	*Covers key aspects of the history, theory, and practice of historic preservation. Preservation will be discussed in the context of cultural history and the changing relationship between existing buildings and landscapes and attitudes toward history, memory, invented tradition, and place. Also offered as CAS AH 546 and CAS HI 546.	UG/GR	CAS American Studies		1	1	
CASAM554	Preservation Planning	*Considers the methods employed to protect and plan for the historic landscape. Topics include the history of preservation planning and the broader planning profession, and a review of case law, legislation, and the protection strategies of current preservation practice.	UG/GR	CAS American Studies		1	1	

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CASAM555	Boston Architectural and Community History Workshop	*This course focuses on class readings, lectures, and research on a single neighborhood or community in Boston (or Greater Boston). Greatest emphasis is on using primary sources-- land titles and deeds, building permits, fire insurance atlases and other maps. There are both group and individual research projects. Also offered as CAS AH 554 and CAS HI 569.	UG/GR	CAS American Studies		1	1		
CASAN556	The Evolution of the Human Diet	*An investigation of human dietary evolution including primate and human dietary adaptations, nutritional requirements, optimal foraging, digestive physiology, maternal and infant nutrition, hunting and cooking in human evolution, and impacts of food processing and agriculture on modern diets and health.	UG/GR	CAS Anthropology		1	1		
CASAR290	Human Impacts on Ancient Environments	*Examination of human impacts on the global landscape over the past 10,000 years through migration, hunting, disease, agriculture, and other cultural activities; implications for contemporary and future resource management and environmental policy. Carries social science divisional credit in CAS.	UG	CAS Archaeology		1	1		
CASEC320	Economics of Less-Developed Regions	*Theoretical and empirical examination of the structural changes associated with the process of economic development; special reference to poor regions and countries; rigorous analysis of criteria for policy judgments in developing planning and programming.	UG	CAS Economics		1	1		
CASEC323	Behavioral Economics	*Introduction to a new field in economics that challenges the traditional model of rational decision-making and uses research in psychology to construct alternative models. Covers the theory of choice under certainty, uncertainty, and temptation; biases in judgment; social preferences.	UG	CAS Economics		1	1		
CASEC325	The Economics of Poverty and Discrimination in the United States	*Examines who is poor in the United States and how the evidence of poverty has changed over time. Various economic theories for the causes of poverty and discrimination are presented for examination and discussion.	UG	CAS Economics		1	1		
CASEC598	The Economics of Globalization	*Analyzes various facets of globalization from both theoretical and empirical perspectives, using tools from international trade theory. Topics include firm-level trade patterns, multinational production, foreign direct investment, the creation of global vertical supply chains, outsourcing, and offshoring.	UG/GR	CAS Economics		1	1		
CASES302	History of Earth	*Introduction to earth history; origin of the earth and solar system; origin and evolution of life; mass extinctions; interpretation of the geological record of earth history; measurement of geological time; plate tectonics and the formation of mountains; continents and ocean basins. Three hours lecture, two hours lab, with occasional field trips.	UG	CAS Earth Sciences		1	1		
CASES317	Introduction to Hydrology	*Introduction to the science of hydrology and to the role of water as a resource, a hazard, and an integral component of the Earth's climatic, biological, and geological systems.	UG	CAS Earth Sciences		1	1		

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CASES360	Geodynamics I	*(Meets with GRS ES 660.) Introduces basic physical principles of Earth's structure and dynamics. Driving mechanisms and plate motion; reflection, refraction seismology, magnetism, gravity and the Geoid, heat flow, tomography, mantle convection. Oceanic and continental lithosphere in active tectonic regions.	UG	CAS Earth Sciences		1	1	
CASES371	Introduction to Geochemistry	*(Meets with GRS ES 671.) Chemical features of Earth and the solar system; geochemical cycles, reactions among solids, liquids, and gases; radioactivity and isotope fractionation; water chemistry; origins of ore deposits; applications of geochemistry to regional and global problems.	UG	CAS Earth Sciences		1	1	
CASES443	Terrestrial Biogeochemistry	*The patterns and processes controlling carbon and nutrient cycling in terrestrial ecosystems. Links between local and global scales are emphasized. Topics include net primary production, nutrient use efficiency, and biogeochemical transformation. Meets with CAS BI 443/643.	UG	CAS Earth Sciences		1	1	
CASES557	Oceanography of Stellwagen Bank and Surrounding Waters	*Nutrient distribution and physical oceanography of Stellwagen Bank and adjacent waters. Bathymetric influences and effects of ocean currents of biogeochemical parameters. Includes day-long cruises on NOAA research vessel. Taught as part of the BU Marine Program Semester.	UG/GR	CAS Earth Sciences		1	1	
CASES576	Aquatic Geochemistry	*Fundamentals of water chemistry as applied to the evolution of surface, soil, and ground waters. Emphasis is on chemical equilibrium and kinetics, pH as a master variable, carbonate chemistry, mineral solubility, aqueous complexes, ion exchange, redox, and weathering reactions.	UG/GR	CAS Earth Sciences		1	1	
CASFR340	Culture and Society of Niger	*Focuses on the following themes: geography and history of Niger; women and family life; the economic situation; industry and commerce; agriculture and the possibility of food self-sufficiency; religion and life cycles; ethnicity; educational reform; health, medical services, and population issues; democratization; and traditional occupations in Niger. Guest speakers, student presentations, group discussions, reading assignments, and field trips. This course is offered in two sections: one is taught in English and the other in French; both require some readings and guest lectures in French.	UG	CAS French Studies		1	1	
CASFY103	First Year Experience Topics	*Focuses on the individual student's connection to the College of Arts & Sciences and to the University through the exploration of a specific topic area.	UG	CAS First Year Experience		1	1	
CASGE201	World Regional Geography	*Overview of the special combination of environmental, historical, economic, and organizational qualities of the regions of the Old World, including Western and Eastern Europe, the former Soviet Union, East and South Asia, the Middle East, and Africa. Emphasis on current issues of regional and global development. Carries social science divisional credit in CAS.	UG	CAS Geography & Environment		1	1	
CASGE365	An Introduction to Geographic Information Systems (GIS)	*Practical hands-on computing experience using GIS for analyzing data from maps and other sources. Analytical functions unique to GIS are emphasized, as are applications in archaeology, land use planning, environmental monitoring, and other fields.	UG	CAS Geography & Environment		1	1	

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CASGE440	Digital Image Processing ? Remote Sensing	*Pursues both the algorithms involved in processing remotely sensed images and their application. Topics include spectral and spatial enhancement, image classification and clustering, spatial analysis, and linear transforms.	UG	CAS Geography & Environment		1	1	
CASGE445	Physical Models in Remote Sensing	*Devoted to understanding the physical processes involved in remote sensing. Emphasis on topics of radiative transfer in the atmosphere, at the surface, and in sensors. Reflectance modeling, advanced sensor systems, and geometric effects.	UG	CAS Geography & Environment		1	1	
CASGE501	Advanced Topics in Remote Sensing	*Examines advanced concepts in radiative transfer and information extraction relevant to remote sensing. Emphasis on applications of digital image processing to remote sensing problems.	UG/GR	CAS Geography & Environment		1	1	
CASGE585	Ecological Forecasting and Informatics	*The statistics and informatics of model-data fusion and forecasting: data management, workflows, Bayesian statistics, uncertainty analysis, fusing multiple data sources, assessing model performance, scenario development, decision analysis, and data assimilation. Case studies highlight ecological forecasting across a range of subdisciplines.	UG/GR	CAS Geography & Environment		1	1	
CASGE594	Global Environmental Negotiation and Policy	*Key concepts, actors, concerns, and issues related to the process of negotiating global environmental policies. Overview of the international system and environmental problems; an international negotiation simulation; case studies of global agreements on ozone depletion, climate change, desertification, and biodiversity, among others. Meets with CAS IR 594.	UG/GR	CAS Geography & Environment		1	1	
CASHI346	History of International Human Rights	*Meets with CAS IR 348. History of international human rights since the eighteenth century. Examines political, social, economic rights, the UN Charter, the Universal Declaration of Human Rights, and related international conventions, enforcement, regionalism, globalization, and NGOs. Analyzes tensions between national sovereignty and human rights.	UG	CAS History		1	1	
CASIR206	Introduction to the Sociology of Globalization	*(Meets with CAS SO 206.) A sociological introduction to globalization. Explores the roles of technology, transnational corporations, and the state. Considers globalization's impacts on the workplace, the environment, and other institutions as well as the emergence of global social movements. Carries social sciences divisional credit in CAS.	UG	CAS International Relations		1	1	
CASIR573	Introduction to Public International Law	*The role of international law in efforts to solve current problems of world order. Emphasis on environmental protection and the regulation of ocean space and resources. The role of law in conflict and cooperation, and the quest for international security.	UG/GR	CAS International Relations		1	1	
CASIR599	Science, Politics, and Climate Change	*Applies a science and technology studies perspective to climate change science and policy. Examines the relationships between scientific and political systems at global, national, and local levels. Also offered as CAS GG 599.	UG/GR	CAS International Relations		1	1	
CASLG305	Science and Culture	*How do science, humanities, and arts intersect and influence cultural attitudes towards society, nature, and the environment? Students progress in all language skills and acquire reading and communicative strategies necessary to discuss the sciences in German.	UG	CAS Modern Languages		1	1	
CASPH150	Introduction to Ethics	*What is morality? What does morality require of us in our daily lives? We look both at theories that specify what morality requires of us and at specific moral issues to which these theories apply. Carries humanities divisional credit in CAS.	UG	CAS Philosophy		1	1	

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CASPH436	Gender, Race, and Science	*Examines issues in feminist philosophy, philosophy of race, and philosophy of science. Is "race" a genuine scientific category or a social construct? How have views about gender and race changed? Why are there still so few women and minority scientists?	UG	CAS Philosophy		1	1	
CASPH452	Ethics of Health Care	*Medicine and health care offer a unique opportunity to explore the nature of humanity and the world and to ask fundamental questions concerning the nature of birth, life, and death, and what it is to be a person. Readings from both classical and contemporary writings in ethics, medicine, law, and public health policy.	UG	CAS Philosophy		1	1	
CASPO309	Women and Politics	*(Meets with CAS WS 350.) Readings, discussion, and field research on issues of women's relationship to the processes of political influence, change, and empowerment. Analysis of public policy related to women and children. This course cannot be taken for credit in addition to the course with the same title that was previously numbered CAS PO 342.	UG	CAS Political Science		1	1	
CASPO329	International Political Economy	*Meets with CAS IR 390. Emphasizes the dynamic interaction between politics and economics to understand and explain historical and contemporary issues in international political economy, including international monetary, trade, investment, financial, and environmental relations. Considers emerging challenges and structures in the international political economy. This course cannot be taken for credit in addition to the course with the same title that was previously numbered CAS PO 355.	UG	CAS Political Science		1	1	
CASPO332	Global Justice	*Charts the historical course of human development and inquires why the quality of life varies so dramatically in the world today. Geographic, economic, and political factors are explored.	UG	CAS Political Science		1	1	
CASPO517	Urban Politics and Policy	*Explores the impact of American urban politics on the implementation of local policy. Topics include deindustrialization, white flight, neighborhood effects, housing policy, schools, regionalism, and factors that constrain policy-making capacities. Also offered as CAS AA 517.	UG/GR	CAS Political Science		1	1	
CASSO323	Markets in Biomedicine and Healthcare	*Complex ways in which market exchange impacts the practice of medicine, the delivery of patient care, and the medical profession; commodification of bodies and emotions; theoretical discussion of the market and overview of US health care system.	UG	CAS Sociology		1	1	
CASSO408	Seminar: Ethnic, Race, and Minority Relations	*Formation and position of ethnic minorities in the United States, including cross-group comparisons from England, Africa, and other parts of the world. Readings and field experience.	UG	CAS Sociology		1	1	
CASSO411	Seminar: Sociology of the Nonprofit Sector	*Introduction to sociological research on that part of society known as the nonprofit sector, including nonprofit organizations, community-based organizations, voluntary associations, and social movements. Focus on some of the literature's major themes: civil society, social capital, and nongovernmental organizations.	UG	CAS Sociology		1	1	
CASSO418	Seminar: Sociology of Medicine	*Focuses on the medical profession, sources of its power and authority, the effects of recent changes in financing and delivery of healthcare. Medical training and decision-making analyzed. Doctor-patient interaction and the use of alternative treatments.	UG	CAS Sociology		1	1	



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CASSO420	Seminar: Women and Social Change in the Developing World	*Studies women in nonindustrial countries of Asia, Africa, and Latin America, stressing empirical research, theory, and methodology. Comparisons between regions and with industrial countries. Focus on sex segregation, female labor force participation, migration, fertility, family roles, and women and political power. Also offered as CAS IR 425.	UG	CAS Sociology		1	1	
CASWS350	Women and Politics	*Readings, discussion, and field research on issues of women's relationship to the processes of political influence, change, and empowerment. Analysis of public policy related to women and children. Also offered as CAS PO 309.	UG	CAS Women's, Gender, & Sexuality Studies		1	1	
CGSNS201	Biology I	*Science as a way of knowing and understanding our contemporary world is the most profound and powerful intellectual and practical tool the human species has developed. Science has allowed us to understand our physical place in the universe as well as our origin as a species on Earth. Science in our globalized modern world can seem increasingly complex, but most scientific understandings are based on relatively few conceptual paradigms or accepted ideas. Many of these major paradigms will be covered in this course, including the origin of life, the molecular and cellular theories of life, human origins, genetics, evolutionary theory and biodiversity. The underlying pedagogy of the course is to examine what we know about an accepted paradigm, how we know these scientific facts and theories, and what are the contemporary applications of the accepted paradigms. The course also provides the primary scientific tools required to explore scientific, ethical and sociological concerns that arise from our understanding of the origin, evolution and diversity of life including that of our own species. Four credit hours total: two hours lecture; two hours lab.	UG	CGS Natural Science		1	1	
COMJO723	Science Newswriting I	*Students develop experience in writing about science, technology, and medicine for the consumer press. At instructor's option, students may write scripts for broadcast and/or articles for publication in scientific, professional, or business magazines and periodicals.	GR	COM Journalism		1		1
COMJO724	Science in the Crosshairs	*This course guides students toward writing short, pithy features and reports on issues of scientific controversy, introducing students to the technical basics of short form narrative, while also taking a hard look at a number of scientific issues. Also a refresher unit on statistics and one on the politics of scientific journals. The focus will be on learning to think, report, research and write as a journalist while at the same time building a sound understanding of some of the most critical issues of our day. Students will be expected to produce four pieces of writing- ranging from brief expository pieces to a fully formed profile.	GR	COM Journalism		1		1
COMJO732	Conflict and Commentary in Science Reporting	*A course in writing about science policy issues, including in-depth coverage of controversial issues and writing scientific-related essay, such as those that appear in Slate and Salon. classroom discussions will involve complex areas of science reporting, including scientific fraud and business issues related to science.	GR	COM Journalism		1		1
COMJO754	Science Journalism Internship	*To be taken during the summer between second and third semesters of the program and then registered during the third semester.	GR	COM Journalism		1		1

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COMJO881	Science video Production	*The moving image carries enormous power; whether shown in theaters, on television, on the internet or on our smart phones, video has the ability to change the world, as has been demonstrated time and again. this course is designed to examine the power of non-fiction video through the deconstruction of various films and videos, and serve as an introduction to video production through a series of production exercises culminating in a complete short film as a final project. While this course focuses on science, it will be useful for anyone interested in learning more about non-fiction video production.	GR	COM Journalism		1		1
ENGBE209	Principles of Molecular Cell Biology and Biotechnology	*Introduction to the molecular, physical and computational principles of cell function in the context of cutting-edge applications in bioengineering and medicine. Biological concepts include: molecular building blocks, energetics, transport, metabolism, nucleic acids, gene expression and genetics. Applications include bioenergy, synthetic biology, the human genome project, and gene circuit engineering. Labs will teach fundamental techniques of molecular biology including a multi-week module where students build and quantify bacterial gene expression system. Labs emphasize the experimental, problem solving, and analytical skills required in modern engineering and research. 4.0 cr	UG	ENG Biomedical Engineering		1	1	
ENGECS83	Power Electronics for Energy systems	*Introduction to power electronics with emphasis on conversion circuits for energy systems. DC to DC conversion using buck, boost, and buck-boost converters. DC to AC inverters. Connection to power grid. Properties of MOS transistors used for high power conversion applications. Properties of magnetic elements and interactions with power circuits. Applications of power electronic circuits to energy systems, including solar cell installations, wave and wind power, and electric vehicles. High frequency inductors and transformers.	UG/GR	ENG Electrical & Computer Engineering		1	1	
ENGEK210	Introduction to Engineering Design	*A two credit introductory course to the principles of engineering design, intended to give second-year undergraduates a basic understanding of the process of converting a product from concept through design and deployment. Students will work in multi-disciplinary teams with time and budget constraints on externally sponsored design projects. Web-based lectures will cover topics concurrent with specific phases of the projects. The course will culminate in a "Design Competition".	UG	ENG Electrical & Computer Engineering		1	1	
ENGM539	Introduction to Materials Science and Engineering	*MS539 is an introductory graduate level course in Materials Science and Engineering. It is intended for students who wish to be introduced to the basics of why materials behave the way they do. It covers topics such as atomic bonding, why and how solids form and their structures, phase transitions, phase diagrams, electronic/magnetic/optical/thermal properties of materials, materials processing and how it influences their properties, ceramics, polymers, ferrous and non-ferrous metals, glasses and societal concern in the use and re-use of materials. This is a 4 credit course.	UG/GR	ENG Materials Science & Engineering		1	1	
GRSAH893	Seminar: Twentieth- Century Architecture	*Topic for Fall 2015: State of Discipline: Historiography of Modern Architecture and Urbanism. This seminar provides a graduate-level survey in the historiography of modern architecture and urbanism with a focus on critical works and paradigm shifts that have characterized scholarship particularly in the last decade.	GR	GRS History of Art & Architecture		1		1
GRSEC731	Market Organization and Public Policy	*Analytical foundations of public policy toward market organization. Theoretical emphasis on imperfect competition, the structure of markets, and the strategic behavior of firms and consumers. Implications for policy in developed and less-developed countries.	GR	GRS Economics		1		1

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GRSEC751	Topics in Labor Economics 1	*In addition to GRS EC 752, this course prepares students to do research in labor economics. Topics include labor supply and demand, human capital, education, job search, wage determination, unemployment, immigration, family and gender, and discrimination. Sequence may be taken in either order.	GR	GRS Economics		1		1
GRSEC752	Topics in Labor Economics 2	*In addition to GRS EC 751, this course prepares students to do research in labor economics. Topics include labor supply and demand, human capital, education, job search, wage determination, unemployment, immigration, family and gender, and discrimination. Sequence may be taken in either order.	GR	GRS Economics		1		1
GRSEC764	Topics in Economic History 1	*First half of two-semester PhD sequence. Topics generally selected from: history of public debt, state finance, and monetary policy; the Industrial Revolution; urbanization; transportation and trade; institutions and long-run performance; the Great Depression.	GR	GRS Economics		1		1
GRSEC765	Topics in Economic History 2	*Second half of two-semester PhD sequence. Topics generally selected from: agricultural and environmental economic history; manufacturing; demographic change; the female labor force; labor mobility; inequality; business organization and performance.	GR	GRS Economics		1		1
GRSEC781	Health Economics 1	*Basic issues in the health market: risk aversion, moral hazard, adverse selection, provider payment, physician-patient interaction, health plans, managed care, imperfect and quality competition, and laboratory and field experiments. Theoretical approach complements industrial organization and GRS EC 782.	GR	GRS Economics		1		1
GRSEC782	Health Economics 2	*Applies theory and econometrics to health topics, including demand and supply, imperfect information, plan-level competition, provider payment, risk adjustment, big data sets, behavioral economics, altruism and health care systems in developed and developing countries. Complements GRS EC 781.	GR	GRS Economics		1		1
GRSEC798	Global Development Capstone	*(Meets with GRS GE 798 and IR 798.) Capstone course for MA students in Global Development Policy and Global Development Economics. Students, working in groups, design and carry out an interdisciplinary policy analysis comparable to those performed for a government or nonprofit agency.	GR	GRS Economics		1		1
GRSGE640	Digital Image Processing - Remote Sensing	*At least introductory statistics (and preferable multivariate statistics) recommended. This course pursues both the algorithms involved in processing remote sensing images and their application. Topics include preprocessing, image transformations, image classification and segmentation, spectral mixture analysis, and change detection. Examples cover a wide range of environmental applications of remote sensing. Students do a project	GR	GRS Geography & Environment		1		1
GRSHI746	History of International Human Rights	*History of international human rights since the eighteenth century. Examines political, social, economic rights, the UN Charter, the Universal Declaration of Human Rights, and related international conventions, enforcement, regionalism, globalization, and NGOs. Analyzes tensions between national sovereignty and human rights.	GR	GRS History		1		1
GRSIR704	Global Economic and Development Policy	*Intermediate level survey of the contemporary politics, economics and policy questions in the international economy: theories of international political economy and international economics; politics of international economic institutions; analyses of industrial development, foreign investment, global and regional trade, and poverty alleviation.	GR	GRS International Relations		1		1

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GRSIR825	Seminar: Women and Social Change in the Developing World	*(Meets with GRS SO 820.) Studies women in nonindustrial countries of Asia, Africa, and Latin America, stressing empirical research, theory, and methodology. Comparisons between regions and with industrial countries. Focus on sex segregation, female labor force participation, migration, fertility, family roles, and women and political power.	GR	GRS International Relations		1		1
GRSPH636	Gender, Race, and Science	*Examines issues in feminist philosophy, philosophy of race, and philosophy of science. Is "race" a genuine scientific category or a social construct? How have views about gender and race changed? Why are there still so few women and minority scientists?	GR	GRS Public Health		1		1
GRSPH652	Ethics of Health Care	*Medicine and health care offer a unique opportunity to explore the nature of humanity and the world and to ask fundamental questions concerning the nature of birth, life, and death, and what it is to be a person. Readings from both classical and contemporary writings in ethics, medicine, law, and public health policy.	GR	GRS Public Health		1		1
GRSSO820	Graduate Study in Women and Social Change in the Developing World	*Studies women in nonindustrial countries of Asia, Africa, and Latin America. Stresses empirical research, theory, and methodology. Comparisons among regions and with industrial countries important. Focus on sex segregation, female labor force participation, migration, fertility, family roles, and women and political power.	GR	GRS Sociology		1		1
KHCPH103	Seeing Poverty	*This course offers students the opportunity to explore the complex issues of American poverty through multiple disciplines and approaches. As a course in the Kilachand Honor's College, Seeing Poverty will utilize multiple sources of information for students to examine the historical, political, and public health "view" of poverty. This multi-disciplinary approach will allow students the opportunity to discover for themselves the "truth" or "truths" of what it means to be poor in America today. Students will think about stories that are told about the poor -- who is doing the telling? How are the poor depicted? Lastly, this course will expose students to my work in five of the poorest cities in Massachusetts (Chelsea, Holyoke, Springfield, Lawrence, and New Bedford) with young adult and teenage mothers. By developing a deep understanding of the causes and sustainers of poverty, it is my hope that students will become critical assessors of the depiction of the poor in popular media, and indeed become advocates for the poor. CAS Divisional Assignment: SS; KHC Assignment: SS	UG	KHC		1	1	
LAWJD716	Construction Law	*This course will introduce students to the key concepts of construction law. The course takes students from pre-construction through project execution, and addresses the issues and conflicts that frequently arise during the construction process. Although portions of the course will address issues of contract law and dispute resolution, the course focuses on issues that are particular and unique to construction. GRADING NOTICE: This course does not offer the CR/NC/H option.	GR	LAW Juris Doctor		1		1

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LAWJD843	Int'l Human Rights Clinic: Human Rights Advocacy (S)	*Students must apply and be accepted to the International Human Rights Clinic before they register for this course. This course will build on the first-semester clinic instruction (International Human Rights and clinic group rounds), focusing on developing skills directly tied to students' ongoing fieldwork. Classes will cover: interviewing and counseling institutional (non-governmental organizations) clients; designing and implementing human rights field research; ethical pitfalls and professional 'best practices' in human rights collaborations with international networks; advocacy within the UN machinery; advocacy within selected regional human rights mechanisms; and in-depth research workshops using comparative and foreign human rights research problems. The classes will be a combination of readings and discussion; simulations; student presentations; short papers and case rounds to discuss project work; and group and individual feedback on project development.	GR	LAW Juris Doctor		1		1
LAWJD936	International Development and Project Finance (S)	*Capital-intensive public and private development projects throughout the world, including large-scale infrastructure, transportation, energy, agriculture, technology and environmental projects depend upon project financing as the primary funding mechanism. Understanding and resolving the political, legal and financial risks associated with the planning and implementation of these projects, and often in emerging and unstable economies, is the critical first step in developing project finance opportunities. The seminar will combine theory and practice and focus on the negotiation and structure of actual project finance and concession agreements and transactions and the minimization of exposures and risks associated with these transactions. Each step of the project finance process will be analyzed, including the rationale and sources for the project finance, the legal framework for the project finance, the organizational and governance structure, risk allocation and mitigation and dispute resolution. An interdisciplinary analysis from the legal, finance and public perspective will be used to assess the views that investors, lenders, designers, contractors, governmental participants, citizens and other stakeholders bring to an infrastructure project. Several of the world's largest and most complex civil engineering and infrastructure mega projects including the English Chunnel, the Chad Cameroon Pipeline, the Dabhol Power Project and Boston's Central Artery Tunnel Project will serve as models for analysis of project finance and risk. A final research paper will be required in lieu of an examination.	GR	LAW Juris Doctor		1		1
METAD600	Economic Development and Tourism Management	*Provides a market oriented, strategic planning framework to address a broad range of tourism and regional economic and development issues that relate to tourism industry development and growth. The interplay of private, public and government organizations is discuss as they relate to the development of a comprehensive tourism plan. The combination of theory and practice will prepare students to analyze tourism markets, assess area, regional and national weakness and strengths as well as the security, infrastructure/logistics, marketing and costs associated tourism. Topics include: importance of tourism to the economy, developing the tourism strategy, ecotourism, research and analysis, positioning and marketing, funding tourism and developing new attractions.	GR	MET Administrative Sciences		1		1
METAD650	Economic Development via Tourism in the Developing World	*Many branches of the tourism industry have become incorporated into the increasingly important economic paradigm of sustainable economic development (economic development while minimizing the negative environmental, social and cultural impact of such development) in both the developed and developing world. In this course students will visit a developing country and learn how the tourist industry has developed in that country, determine how sustainable that development has been and what are potential directions for future growth in the tourist industry.	GR	MET Administrative Sciences		1		1

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METAD758	Eco-Tourism	*The course examines the emerging area of eco-tourism in both developing and developed nations. The issues discussed involve the purpose of eco-tourism, importance to GDP, infrastructure demands, return on investment, and the possible financial strains and returns to local areas. The course provides a thorough examination of potential benefits as well as liabilities of eco-tourism to the region, indigenous population, and nation as well as who can gain and who can lose from such undertakings.	GR	MET Administrative Sciences		1		1
METBI407	Animal Behavior (EBE)	*Ethological approach to animal behavior, including humans; physiological, ontogenetic, and phylogenetic causes and adaptive significance of behavior within an evolutionary framework. Laboratory course. Three hours lecture, three hours lab.	UG	MET Biology		1	1	
METML622	History of Food	*History is part of a holistic, interdisciplinary approach to food studies. Our goals include understanding the ways in which the history of food has shaped our world today and examining ways in which contemporary questions and problems inform historical inquiries. Course readings address some of the ways in which food has influenced human history, particularly at crucial turning points – for example, the rise of the first civilizations and the European discovery of the Americas. We will also study selected past events and societies through the lens of food and foodways. The topics chosen for the course are presented in thematic and geographic categories, rather than in strict chronological order. The themes are divided among three encompassing meta-themes: Technology & Nature, Mobility, and Culture & Cuisine. These meta-themes will help us to move from the details of our specific weekly topics to their meanings in relationship to larger forces in world history. Students will learn about historical methodology and apply it to their own research.	GR	MET Gastronomy		1		1
METML641	Anthropology of Food	*What can food tell us about human culture and social organization? Food offers us many opportunities to explore the ways in which humans go about their daily lives from breaking bread at the family table, haggling over the price of meat at the market to worrying about having enough to eat. Food can also tell us about larger social organizations and global interconnections through products like Spam that are traded around the globe and the ways in which a fruit like the tomato transformed the culinary culture of European nations. In this course we will consider how the Anthropology of Food has developed as a subfield of Cultural Anthropology. We will also look at the various methodologies and theoretical frameworks used by anthropologists to study food and culture. 4 cr.	GR	MET Gastronomy		1		1
METML712	Food and Society	*Examines the role of food in society and how it shapes identity and structures our lives. Explores multiple contexts of food production, access, procurement, and consumption, including rural agricultural sites, urban homesteads, grocery shopping, CSAs, and food assistance programs, and the intersection of food practices with class, ethnicity, race, and gender.	GR	MET Gastronomy		1		1
METUA301	Introduction to Urban Affairs	*This course takes an interdisciplinary approach to urban affairs and urban problems, including an overview of prominent theories about the nature and causes of urban problems. We will examine the metropolitan area as a complex system with interdependent institutions and problems and consider present as well as future urban policy options in areas such as housing, transportation, crime, education, environment and economic development.	UG	MET Urban Affairs		1		1

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METUA510	Selected Topics in Urban Affairs	*UA510 is the designation for "Special Topics in Planning". The subject matter for UA510 courses changes from semester to semester, and more than one UA510 can be offered in a given semester.    Topic for Spring 2016: "History of Metropolitan Boston"   This course provides an historical overview of Boston's metropolitan development, from the earliest country estates to suburban sprawl and the smart growth movement. The course is based upon the recent book The Hub's Metropolis: Greater Boston's Development from Railroad Suburbs to Smart Growth (The MIT Press, 2013). It provides historical context for understanding the region's contemporary planning efforts that are addressing the challenges of low-density sprawl, climate change, and the global information age economy.   The course examines ten periods of Greater Boston's metropolitan development. The class explores how each era produced a distinctive vernacular land use development pattern. Each period had particular characteristics related to the built landscape, transportation, real estate development patterns, housing styles, commercial development, and the treatment of open and public space. Although there has been much formal government planning over the years, there is a "deep structure" to development patterns that is not easily altered by planners, politicians, or developers. Each era of suburbanization has also been shaped by cultural attitudes toward suburbs, the city, and social class, etc. The course discusses how Boston has been a national case study for	UG/GR	MET Urban Affairs		1	1	
METUA515	History, Theory and Planning Practice	*History, concepts, and methods of contemporary urban and regional planning practice. Governmental, nonprofit, and private settings of professional planning; plans, research, and policy development; uses and implementation of planning. Political analysis of planning issues, such as comprehensiveness, public interest, advocacy, negotiation, and future orientation. Case materials drawn from redevelopment, growth management, land use conflicts, and service delivery.	UG/GR	MET Urban Affairs		1	1	
METUA590	International Comparative Urbanization and Planning	*Examination of a selected country, region, or city in relation to issues of urbanization and development planning. Emphasis on comparative analysis of policy, techniques, conditions, issues, and effectiveness. Topics and international subjects vary. Consult the department for details.	UG/GR	MET Urban Affairs		1	1	
METUA613	Urban Design	*The role of urban design in the community development process. Examines human behavior, aesthetic foundations of design methods, citizen/client participation, and public policy issues. Analysis of actual community spaces. Student design exercises.	GR	MET Urban Affairs		1		1
METUA654	Geographic Information Systems for Planners	*Geographic Information Systems for Planners provides an introduction to Geographic Information Systems (GIS) specifically with a focus on applications in urban planning. The role of spatial analysis in local, state and regional planning has steadily increased over the last decade with the infusion of windows-based GIS software such as ESRI ArcGIS. The class focus is to prepare students to feel comfortable communicating with other GIS users, research spatial data, and produce high quality digital maps in an applied learning environment.	GR	MET Urban Affairs		1		1
METUA715	Planning and Land Use Law	*In this course we will read and analyze the important U.S. Supreme Court and state court decisions that have shaped and continue to influence zoning, planning, and other land use controls throughout the country. We will see the interaction between court decisions and land use controls and how each has evolved to meet changing conditions and goals. We will also review the structure of the U.S. legal system and how to brief court decisions and create a framework for understanding constitutional requirements on eminent domain, due process, and equal protection from a planner's perspective.	GR	MET Urban Affairs		1		1

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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
METUA805	The Boston Urban Symposium	*The Boston based Urban Symposium will be a thematic Spring symposium, required for students in the Urban Affairs and City Planning programs. The class meetings will weave together the interdisciplinary nature of the urban planning and city planning professions. While the symposium topics will change each spring, professionals and industry leaders will be invited to lecture on their experiences, contemporary challenges to the professions, and major problems confronting the public and private sectors. Recognizing the unique and diverse characteristics of the Boston urban environment, the symposium themes will be drawn from topical issues that involve the greater Boston metropolitan area. The course features a combination of guest speakers and academic case studies that emphasize the interdisciplinary nature of urban planning.	GR	MET Urban Affairs		1		1
SMGSM131	Business, Society, and Ethics	*Required of all SMG freshmen. Students will explore the ethical problems facing global management. Through identification and discussion of the substantive disciplines relevant to business, students will uncover a complicated analysis necessary to make appropriate decisions and will highlight their interdependencies. This course stresses written and oral communication skills and logical reasoning as an ingredient for sound analysis and rational business planning. The course stresses teamwork because at the heart of modern management is the need to collaborate with others and to organize, motivate, and monitor teams of diverse people to accomplish shared goals. 4 cr.	UG	SMG Management Core		1	1	
SPHEH768	Introduction to Toxicology	*This introductory course presents the basic concepts of toxicology, including dose-response relationships, biological and chemical factors that influence toxicity, types of harmful effects, principles of testing for toxic effects and the underlying concepts behind toxicant-induced disease susceptibility. Toxicants found in the environment, such as metals, pesticides and industrial pollutants, are studied. The course assumes basic knowledge of chemistry and biology, although there are no prerequisites. This course is required of all Environmental Health concentrators.	GR	SPH Environmental Health		1		1
SPHEH804	Exposure Assessment	* The process of assessing exposure is a critical component of occupational and environmental epidemiology, of determining compliance with health and safety regulations, and in conducting human health risk assessments. This course in exposure assessment covers the basic concepts and methods of study design, data collection, and data analysis/interpretation. Students analyze relevant case studies and conduct a study in which they develop their own exposure assessment strategy, collect and analyze data, prepare a final report, and present their findings.	GR	SPH Environmental Health		1		1
SPHEH811	Geographic Information Systems (GIS) in Public Health	*This course is an introductory level course for a novice GIS user. Geographic Information Systems (GIS) is a useful tool in the public health field. This course provides students with the skills needed to apply GIS in their careers. Topics covered include basic mapping, development of geographical datasets, and data analysis from applications of GIS in different disciplines of public health. A substantial portion of the course will be devoted to computer lab sessions. The course will use ArcGIS software.	GR	SPH Environmental Health		1		1



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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
SPHEH840	Advanced and Emerging Topics in Toxicology	*This advanced-level course builds on the content of EH768. The course uses a case study approach to teach the molecular mechanisms by which compounds exert their toxicity in addition to dose-response analyses that are applicable to regulatory toxicology. Experimental methods and toxicological data that are generated are presented and discussed for each of the case studies. The most recent literature is consulted to support the most up-to-date analyses of toxic mechanisms. Major topics include cellular mechanisms of action of toxicants as they relate to endocrine/reproductive toxicology, neurotoxicology, and immunotoxicology, and the use of these data in regulatory toxicology. Up and coming areas (e.g. microbiome) and contentious chemicals (e.g. glyphosate) are included each year.	GR	SPH Environmental Health		1		1
SPHGH703	Global Public Health: History, Approaches, and Practices	*If I have seen further it is only by standing on the shoulders of Giants. Sir Isaac Newton, 15 February 1676. As public health professionals, we stand on the shoulders of giants. This course has two major goals: to welcome students into membership in the professional social movement called public health and to expose them to the rich historical tradition of the profession. Using selected public health case studies, we will highlight a selection of extraordinary individuals and events with the goal of illuminating current global health architecture and building understanding of the politics of priority-setting and decision-making. The course will address issues of human rights, individual rights, population rights and ethics and for students interested in global health.	GR	SPH General Health		1		1
SPHGH704	Global Public Health and Medical Care: A Systems Approach	*This course gives students an understanding of the elements common to all health and medical care systems, including the factors which influence the shape, cost, performance, and quality of health systems. Examples are drawn from countries whose wealth and stage of development vary widely. The interaction between the public and private components of the health sector is explored. Equity in health services is a crosscutting theme. Students learn about the organization, delivery, and financing of health care and the strengths and weaknesses of alternative approaches to health care finance and delivery. The major problems in health care facing low- and middle-income countries and the strategic options available to these countries are addressed. The course is taught in an interactive format, involving a significant amount of structured group work.. There is an emphasis on systems thinking and systems approach. All Global Health concentrators, MPH students who are not U.S. citizens or permanent residents of the U.S., and MI program students may take this class. HPM concentrators must take PM702. Students who have taken PM702 for MPH degree credit may enroll in GH704 as an MPH elective. Global Health concentrators are given preference in registration but registration is open.	GR	SPH General Health		1		1

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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
SPHGH720	Social and Behavioral Sciences in Global Health	*Public health professionals know what behaviors contribute to health; however, they know less about why people fail to adopt healthy practices. This course is based on the premise that the more we understand about why people behave the way they do, the more successful we will be as we develop and implement programs and policies designed to improve health. This course uses psychology, sociology and anthropology to improve our understanding of the determinants of health behavior and will provide an introduction to a variety of health behavior theories and basic qualitative research methods. Our intent is to develop practical strategies for understanding the social and behavioral foundations of public health, enabling us to plan effective interventions. Working individually and in groups, students will use conceptual frameworks such as BEHAVE to help identify a public health problem, select a target audience, conduct basic qualitative research to determine facilitators and barriers to engaging in a given practice, and propose several behavior change and communications (BCC) strategies based on an assessment of the situation. GH720 meets the MPH core course requirement in social and behavioral sciences for Global Health concentrators and international, nonresident students who are not SB concentrators. Students may not take both GH720 and SB721 for MPH degree credit.	GR	SPH General Health		1		1
SPHGH722	Supply Chain Management for Improved Health System Performance	*Supply chain logistics is an important aspect of public health programs, and an area that is often unappreciated. The journey from manufacturer to a patient in a remote rural village in Africa is complicated and fascinating serious management challenge. This course provides a practical introduction to the core tenets of health commodity supply chain management (SCM), including system design, assessment, quantification, procurement, inventory management, and logistics management information systems. Using the "Access Framework," students will gain foundational knowledge and apply that knowledge in class exercises, discussions, case studies, and stakeholder interactions. Course assignments will have a strong experiential component with a focus on professional level communications and analytical skills.	GR	SPH General Health		1		1
SPHGH743	Implementing Health Programs in Developing Countries: Making Programs Work	*As professionals working in low and middle income countries, we often end up running programs we did not design, which are under-financed, and which face enormous implementation challenges. In this course, students will work with a specifically identified health program that is currently being implemented and conduct systems analyses, undertake problem solving exercises, and propose solutions to real implementation challenges in the field. Ultimately they will be able to prioritize the interventions necessary to effectively run a complex health program in such diverse situations as urban slums and dispersed rural areas in developing countries and be prepared to plan the actions to effectively run those programs. This course is directed towards students in the health management emphasis area and is not suitable for students in their first semester of studies. Students who will particularly benefit from this course are foreign nationals returning to their own countries and U.S.citizens or residents who will provide technical assistance through NGOs or other agencies to implement existing health programs.	GR	SPH General Health		1		1

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Course ID	Course Title	Description	Level	Department	Notes	Total Count	Undergraduate	Graduate
SPHGH745	Monitoring and Evaluation of Global Health Programs	*here is consensus within the global public health community that inadequate project monitoring and evaluation (M&E) represents a major constraint in programmatic efforts to address the problems we face. The absence of sound M&E processes in large numbers of public health projects, despite continued evidence of their value in assessing and improving project performance, suggests that many project planners and managers may not yet have the necessary skills or understanding to develop and operate such systems. This course is designed to help address this need. This course provides a detailed analysis of program monitoring and evaluation with an emphasis on public health and nutrition-related projects. By reading relevant literature and using case studies, students will gain an understanding of the language and tools of program evaluation. The course will focus both on theory and practical utilization, and will consist of presentations, discussions, and applied exercises involving the preparation and critiquing of monitoring and evaluation plans. The course has a required, non-credit lab that is scheduled in a different time slot than the class.	GR	SPH General Health		1		1
SPHGH755	Managing Disasters and Complex Humanitarian Emergencies	* This course will provide students with a solid introductory understanding of disasters and complex emergencies and introduce practical responses and interventions. By the end of the course, students will be able to describe human and natural emergencies and their main causes, articulate and conduct public health assessments, prioritize needs, and plan immediate and long-term interventions. Class discussions will also focus on analyzing and anticipating the consequences of emergencies.	GR	SPH General Health		1		1
SPHGH762	Essentials of Economics and Finance for Global Health	*This course is an introduction to the essential concepts and tools of health economics and financing with application to the particular challenges facing transitional and developing countries. The course does not assume prior training in economics and will provide an introduction to the conceptual underpinnings of health economics, highlighting those concepts that will be most useful in applied policy settings. Case studies will focus on practical application to current global health financing policy problems.	GR	SPH General Health		1		1
SPHGH770	Poverty, Health, and Development	*Poverty, Health and Development is an elective course for MPH students in Global Health and a core course for graduate students in the Global Development Policy Program at BU. The goal of this course is for students to explore the relationships between poverty, health, and development in low-income countries. While not primarily a methods course, methods in public health, economics, statistics, and quantitative impact evaluation will be introduced and used throughout the course.	GR	SPH General Health		1		1
SPHGH777	Global Health Culminating Experience Seminar	*This seminar course has two main purposes: first, to enable participants to respond to one another's work, examine issues in the writing process, make improvements from draft to draft, and complete a well-researched, well-argued concentration paper; second, to explore issues in global health that are the focus of their research and emerge with a greater understanding of the questions they raise for policy and practice. Papers go through three drafts, and students will have the opportunity to give and receive feedback in peer review sessions. Background readings and regular participation in class critiques and discussions are required. Students must be working on their culminating experience to be enrolled in the class.	GR	SPH General Health		1		1

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SPHGH795	Global AIDS Epidemic: Social & Economic Determinants, Impact, & Responses	*AIDS is one of the most important pandemics and human development challenges of our time. This course explores the determinants and impacts of the AIDS pandemic and examines best practices in prevention, care and treatment and impact mitigation. Students will explore the relationship between human rights, gender and vulnerability to HIV; examine effective multi-sectoral responses; and evaluate the benefits and limitations of major multi- and bi-lateral AIDS initiatives. Students will also examine the major debates in the AIDS field and explore different, at times contradictory, perspectives.	GR	SPH General Health		1		1
SPHGH811	Applied Research Methods in Global Health	*The objective of this course is to teach student teams how to collect and analyze data to answer research questions and evaluate health interventions. Student teams will conduct a research study with multiple research methods including a cross-sectional survey and their choice from a variety of qualitative methods. The scope of the research questions addressed will be limited to minimal risk research conducted with students on the Boston University Medical Campus in the space of a semester. Each team will design a questionnaire, administer it, and enter and analyze the data using R. In conjunction with the cross-sectional survey, each team will also use some form of qualitative method, such as in-depth interviews or focus group discussions. The student teams will integrate the results of the cross-sectional survey and the qualitative research and present a report with findings and recommendations to their peers and faculty members. Students completing the course will have the skills to be able to collect and analyze data in a wide variety of settings.	GR	SPH General Health		1		1
SPHGH885	Global Trade, Intellectual Property, and Public Health	*On the broadest level, any person interested in global public health needs to know about globalization and trade. Globalization rewards creative and technically skilled workers and places its largest pressures on lower-skilled workers. A specific example of globalization is that of India and their embrace of new intellectual property (IP) laws. The implementation of these IP and trade rules lies somewhere between outright opposition to reforming global IP rules and an unthinking acceptance that doing so will encourage biomedical innovation and improved health outcomes. The effects of stronger IP standards on health and innovation in medicines and diagnostics are ambiguous and thus need to be subjected to empirical analysis. This course will explore the complex and ambiguous relationship between global trade, intellectual property and its impact on public health.	GR	SPH General Health		1		1
SPHGH888	Seminar on Global Health Policy Issues	*This seminar focuses on policy formulation related to public health problems in low- and middle-income countries and is intended for students who have some experience. How is policy formulated in different settings? Who sets the policy agenda? Why do some issues get the attention of policy-makers, while other equally important issues fail to gain traction? And what approaches can be used to improve the chances of a particular policy being adopted? Students will carry out a policy analysis on a policy issue of their choice, using the policy analysis approaches and tools presented in class.	GR	SPH General Health		1		1
SPHLW719	Essentials of Public Health Law	*Law is an essential tool for creating and implementing public health policies. The goal of this course is to enable students to understand how and when the law can be used to implement health policies and programs. It is designed for students who do not have prior experience or education in law and covers basic legal concepts and the process of decision making by legislative, administrative, and judicial bodies. Students learn how to construct oral and written arguments while analyzing how American law balances the rights of individuals with the interests of government and where appropriate analyzes the ethics of policy choices. By examining constitutional, common-law and statutory rights related to public health and health care students are prepared to compare such rights with those in other countries and in relation to the aspirational rights set forth in the Universal Declaration of Human Rights (UDHR). Health Law, Bioethics, and Human Rights concentrators must take LW751.	GR	SPH Health Law, Bioethics, & Human Rights		1		1

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SPHLW725	Ethical Issues in Medicine and Public Health	*This course reviews the nature and scope of moral dilemmas and problematic decision making in public health, medicine, and health care. After a survey of ethical theory, the course focuses on a broad range of ethical concerns raised by the theory and practice of public health and medicine: the nature of health, disease and illness, health promotion and disease prevention; rights, access, and the limits of health care; the physician-patient relationship; truth-telling and confidentiality. Through a series of case studies, the course examines specific topics: the bioethics movement and its critiques; human experimentation; the role of institutional review boards; the concept and exercise of informed, voluntary consent; abortion, reproduction, genetic counseling and screening; euthanasia, death and dying; ethics committees; and international and cross-cultural perspectives.	GR	SPH Health Law, Bioethics, & Human Rights		1		1
SPHLW740	Health and Human Rights	*This course is appropriate for graduate, 4+1, and undergraduate students and is taught at the Medical Campus. Health is closely linked to the realization of human rights. Preventable illness, infant mortality, and premature death, for example, are closely tied to societal discrimination and violation of human rights. This course explores the relationship between human rights and health by examining relevant international declarations in historical context, exploring the meaning of "human rights" and "health," and analyzing specific case studies that illuminate the problems, prospects, and potential methods of promoting health by promoting human rights on the national and international levels.	GR	SPH Health Law, Bioethics, & Human Rights		1		1
SPHLW751	Public Health Law	*This course introduces students to the legal system and to major legal issues and problems confronting the public health professional. By analyzing judicial decisions, students learn about legal analysis and conflict resolution and avoidance. Thus they learn to see the legal system as a tool that can be used to advance, rather than impede, the implementation of specific public health policies. Topics covered include state public health powers, federal activity in public health, medical malpractice, privacy and confidentiality of medical information, mental health law, abortion and sterilization, patients' rights, emergency medical care delivery, legal status of allied health professionals, human experimentation, and rights of the terminally ill. This course is a prerequisite for most other Health Law courses. Students who take this course cannot take LW719 for degree credit. Health Law concentrators must complete this course to fulfill the health law MPH core requirement.	GR	SPH Health Law, Bioethics, & Human Rights		1		1
SPHLW840	Health Law, Bioethics, and Human Rights	*Health law, bioethics, and human rights are converging in challenging ways, especially at the national level (in both legislation and constitutional adjudication), and the international law level. This seminar will explore the convergence and its meaning for the law and society through specific case studies including post-9/11 proposals for mass quarantine; torture and force-feeding justifications in the GWOT; genetic engineering and the new reproductive technologies; the relationship between abortion and the death penalty; and the meaning of the "right to health." This class is taught at BU School of Public Health and meets the Health Law, Bioethics, and Human Rights Department capstone requirement.	GR	SPH Health Law, Bioethics, & Human Rights		1		1

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SPHLW850	Public Health Law	*This problem-oriented research seminar enables students to confront questions about health risks as such questions typically arise in practice -- in all their messy complexity and without doctrinal labels. The seminar offers a systematic framework for identifying health risks, drawing on theories of risk perception, cognitive reasoning, and empirical evidence. Using contemporary examples of risks from firearms, tobacco, drugs, foods and other consumer products, genetics, personal behavior, contagious and chronic diseases, bioterrorism, surveillance, and the social environment, students analyze and compare the applicability and effectiveness of different legal strategies to control different types of risks. Strategies include criminal and civil prohibitions, mandatory product standards, tort liability, mandatory data collection, biometric testing, wellness programs, conditions of employment, advertising and marketing restrictions, isolation and quarantine, involuntary treatment, taxation, and limits on liability. Emphasis is on the different requirements for and limits of laws regulating personal behavior and laws regulating products and commercial activities. Students conduct independent research to develop a legal strategy to address a contemporary risk to health.	GR	SPH Health Law, Bioethics, & Human Rights		1		1
SPHMC775	Social Justice and the Health of Populations: Racism and other systems of oppression in America	*This course is focused on strengthening public health students' knowledge, skills and ability to construct a critical appraisal of the determinants, distribution, causes, mechanisms, systems and consequences of health inequities. The course is premised on the knowledge that social patterns of health and well-being do not happen by accident, but occur as a result of social systems which unfairly advantage some and disadvantage other groups of people. As such, inequity more explicitly defines what we know to be a "fairness" issue in public health. The course will be organized around investigating the current state of health inequities in the United States, critically examining the current research around causes and consequences of inequities, and critiquing social and public health programs for their capacity to eliminate them. The course is designed to help students translate current knowledge and research into specific public health strategies. This class also carries concentration credit for the Social & Behavioral Sciences concentration.	GR	SPH Maternal and Child Health		1		1
SPHMC786	Immigrant Family Health: Public Health Across Borders	*This course focuses on low-income immigrants in the U.S. and applies a family and community health perspective to the study of their health and well-being. It begins with an overview of how political, economic, cultural factors at the global and local levels shape the migration patterns and health of immigrants and refugees. We then examine specific immigrant groups and health issues, with attention to interventions that engage community members in taking action. Students will gain critical skills in contextual analysis, community based participatory research, and project design. This class counts for MC, SB, and IH concentration credit.	GR	SPH Maternal and Child Health		1		1
SPHPH510	Essentials of Public Health	*Students will gain an understanding of public health as a broad, collective enterprise that seeks to extend the benefits of current biomedical, environmental, social, and behavioral knowledge in ways that maximize its impact on the health status of a population. The course will provide an overview of the public health approach including epidemiology, understanding the social determinants of health, and prevention. Through active learning, students will learn skills in identifying and addressing an ever expanding list of health problems that call for collective action to protect, promote and improve our nation's health, primarily through preventive strategies. Specific topics will include: food safety, HIV/AIDS, vaccines, and tobacco control and prevention. PH510 is a requirement for obtaining an undergraduate minor in public health. It is appropriate for undergraduates and others who are not in an SPH degree program. It does not carry degree credit for MPH students.	GR	SPH General Public Health		1		1

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SPPH719	Health Systems, Law, and Policy	*This is a course about who gets what health services, when and how. Policies and laws governing what services are available and on what terms strongly influence health status at both the individual and population levels. This course examines the Constitutional, regulatory, political and socio-economic bases for the policies that determine access, quality, cost and equity in health services and population health programs. While the focus is principally on US examples, the course is structured on the World Health Organization's framework for organizing and analyzing national health systems, covering governance, financing, delivery systems, workforce, and human and other resources. The course combines intensive individual preparation for each class using both written and video materials, interactive class presentations and hands-on individual and group projects in laboratory sessions.	GR	SPH General Public Health		1		1
SPPH856	Law & Ethics for Public Health Leaders	*Law, ethics, and human rights often either determine or heavily influence both the range of choices open to public health policymakers and the means available to achieve public health goals. Using case studies, including rationing flu vaccine, responding to catastrophes such as Hurricane Katrina, protecting and promoting women's health and reproductive rights in developing countries, and regulating research to prevent exploitation of subjects in resource poor countries, students will recognize and integrate legal, ethical, and human rights concepts into public health policy development.	GR	SPH General Public Health		1		1
SSWHB735	Racial Justice and Cultural Oppression	*This course examines the social psychological, and institutional causes and implications of racism as a dynamic force influencing social work. The course builds on and integrates concepts presented in foundation courses. It analyzes and evaluates the social, cultural, political, economic, and interpersonal contexts of racism that bear on our current policies and institutional arrangements. The course is designed to familiarize students with 1) theoretical overviews of race and racism; 2) historical accounts and contemporary experiences of racism; 3) the formation of racial identity; 4) multicultural contexts and fundamentals of cultural competency; and 5) effective social change efforts based on organizational analysis.	GR	SPH Social & Behavioral Sciences		1		1
STHTS829	Christian Ecological Ethics and Political Issues	*This course will introduce students to the character and dimensions of the ecological crisis and will; to help them reflect theologically and ethically on ecological problems, to develop or enhance their particular faith tradition's theoretical and practical engagement with ecological issues, gain knowledge of the intersection of ecology and economics, and political and public policy implications of this relationship, and to formulate public policy possibilities and practical projects to address and seek to solve ecological problems.	GR	STH Ethics		1		1
18 departments not previously mentioned						Total Courses that Include Sustainability	UG & UG/GR Course Total	GR Course Total
Totals						129	63	66