

Degree Title	Program	School	Learning Outcomes	URL
Biology, specialization in Ecology & Conservation Biology	Concentration	CAS	<p>Demonstrate knowledge of fundamental principles spanning the breadth of biology, with an in-depth knowledge of the ecology of natural ecosystems and the measures needed to sustain Earth's life-support systems.</p> <p>Demonstrate expertise in the scientific method, specifically the ability to apply the scientific method—which includes critical assessment of the scientific literature, analysis of data, and use of modeling and simulation in the understanding and communication of biology.</p> <p>Attain the technical and/or analytical skills required for employment or postgraduate education in biology or biology-related careers, including professional careers and science education</p>	https://www.bu.edu/academics/cas/programs/biology/ba-ecology-conservation/
Earth & Environmental Sciences	Minor	CAS	<p>Demonstrate knowledge of fundamental concepts and specific topics in environmental science, Earth and climate science, and Earth observations that inform the study of planet Earth.</p> <p>Understand the application, and limits, of problem-solving tools from the Earth and environmental sciences to represent, organize, and assess information.</p> <p>Identify and quantitatively analyze data in order to critically evaluate scientific arguments related to the study of Earth and environmental systems.</p> <p>Communicate effectively, both in writing and verbally, using languages from environmental science, Earth and climate science, and Earth observations to express ideas and their importance.</p> <p>Solve complex problems in Earth and environmental sciences that require the application of scientific concepts and laboratory techniques from a combination of Earth and climate science, environmental science, and Earth observation.</p>	https://www.bu.edu/academics/cas/programs/earth-environment/minor-in-earth-environmental-sciences/
Earth & Environmental Sciences	BA	CAS	<p>Demonstrate knowledge of fundamental concepts and specific topics in environmental science, Earth and climate science, and Earth observations that inform the study of planet Earth.</p> <p>Understand the application, and limits, of problem-solving tools from the Earth and environmental sciences to represent, organize, and assess information.</p> <p>Identify and quantitatively analyze data in order to critically evaluate scientific arguments related to the study of Earth and environmental systems.</p> <p>Communicate effectively, both in writing and verbally, using languages from environmental science, Earth and climate science, and Earth observations to express ideas and their importance.</p> <p>Solve complex problems in Earth and environmental sciences that require the application of scientific concepts and laboratory techniques from a combination of Earth and climate science, environmental science, and Earth observation.</p>	https://www.bu.edu/academics/cas/programs/earth-environment/ba-in-earth-environmental-sciences/

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Energy & Environment	BA/MS	CAS	<p>Demonstrate a thorough understanding of (a) one or more current energy and/or environmental issues along multiple dimensions (resources, technologies, and markets), and their relationship of these dimensions to (b) fundamental concepts from economics and other social science disciplines (e.g., political science/international relations, or law), and (c) fundamental concepts from natural science.</p> <p>Demonstrate knowledge of quantitative and qualitative theoretical frameworks and methodological approaches used to analyze environmental problems and understand the effectiveness of policy interventions.</p> <p>Quantitatively analyze data and perform simulation modeling to characterize the impacts of energy and environmental policies on human systems.</p> <p>Communicate effectively, verbally and in writing, concepts in the natural and social sciences as they relate to environmental issues, and demonstrate a thorough understanding of the broader societal consequences of one or more environmental problems and policies.</p> <p>Apply analytical techniques from statistics, spatial science, and economics to solve qualitative and quantitative problems in the design and implementation of policies to address environmental issues.</p>	https://www.bu.edu/academic/cas/programs/earth-environment/bama-energy-environment/
Environmental Analysis and Policy	BA	CAS	<p>Demonstrate knowledge of (a) current environmental issues, and the manner in which they are related to (b) fundamental concepts from social science disciplines (microeconomics as well as one or more of sociology, anthropology, political science/international relations, or law) and (c) fundamental concepts from natural science disciplines (one or more of physics, chemistry, biology).</p> <p>Demonstrate knowledge of quantitative and qualitative theoretical frameworks and methodological approaches used to analyze environmental problems and understand the effectiveness of policy interventions.</p> <p>Quantitatively analyze data and perform simulation modeling to characterize the effects of anthropogenic stressors (e.g., pollution)—and policy interventions to address them—on human and natural systems.</p> <p>Communicate effectively concepts in the natural and social sciences as they relate to environmental issues, both in writing and verbally, and demonstrate understanding of the broader societal impacts of environmental problems and policies.</p> <p>Apply a range of analysis methods toward solving qualitative and quantitative problems in the design and implementation of policies to address environmental issues.</p>	https://www.bu.edu/academic/cas/programs/earth-environment/ba-environmental-analysis-policy/
Environmental Analysis and Policy	Minor	CAS	<p>Demonstrate knowledge of (a) current environmental issues, and the manner in which they are related to (b) fundamental concepts from social science disciplines (microeconomics as well as one or more of sociology, anthropology, political science/international relations, or law), and (c) fundamental concepts from natural science disciplines (one or more of physics, chemistry, biology).</p> <p>Demonstrate knowledge of quantitative and qualitative theoretical frameworks and methodological approaches used to analyze environmental problems and understand the effectiveness of policy interventions.</p> <p>Quantitatively analyze data and perform simulation modeling to characterize the effects of anthropogenic stressors (e.g., pollution)—and policy interventions to address them—on human and natural systems.</p> <p>Communicate effectively concepts in the natural and social sciences as they relate to environmental issues, both in writing and verbally, and demonstrate understanding of the broader societal impacts of environmental problems and policies.</p> <p>Apply a range of analysis methods toward solving qualitative and quantitative problems in the design and implementation of policies to address environmental issues.</p>	https://www.bu.edu/academic/cas/programs/earth-environment/minor-in-environmental-analysis-policy/

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International Relations, Environment and Development Track	Concentration	CAS	<p>Demonstrate substantive interdisciplinary knowledge of legal, political, economic, social, cultural, and historical factors influencing international affairs.</p> <p>Display an in-depth understanding of an important functional subfield of the discipline and a major geographical region of the world.</p> <p>Conduct theoretically informed and empirically based analysis of real-world conditions and events and present the results of that analysis persuasively in written and oral forms.</p>	https://www.bu.edu/academics/cas/programs/international-relations/ba/
Sustainable Energy	Minor	CAS	<p>Description: Energy is now central to one of the preeminent challenges facing humanity: a sustainable human existence on the planet. The minor in Sustainable Energy allows students pursuing any undergraduate major at Boston University to complete a coherent suite of courses that exposes them to the interdisciplinary nature of energy studies. The curriculum includes the essentials of energy from the business, economics, policy, and engineering perspectives, as taught by faculty experts in those areas.</p>	https://www.bu.edu/academics/cas/programs/earth-environment/sustainable-energy-minor/
Energy Technologies and Sustainability	Concentration	CAS	<p>Description: Engineering breakthroughs in energy and the environment will shape our future society. The Energy Technologies and Sustainability concentration is designed for undergraduate engineering students to acquire a fundamental understanding of the environmental impacts of various energy technologies and put them in a position to pursue a career in green technology. The diverse elective courses will include the analysis of recent environmental policy; the electro-chemistry of fuel cells and battery cells; the planning, operation and marketing of sustainable power systems; and the emergence of sustainable energy as the defining environmental challenge of our time. As the engineering discipline of energy and environment continues to grow, students with a specialized background in this concentration will be well-prepared for this emerging field.</p>	https://www.bu.edu/eng/programs/energy-concentration/
Biogeoscience	Certificate	GRS	<p>Demonstrate academic mastery in biogeoscience.</p> <p>Attain research expertise and complete original research that advances a specific field of study within the field of biogeoscience.</p> <p>Be prepared to enter the job market.</p> <p>Communicate research questions and results to the scientific community and communicate research findings and wider implications of biogeoscience research to the general public.</p>	https://www.bu.edu/academics/grs/programs/biogeoscience/

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Biology, specialization in Ecology, Behavior, and Marine Biology	Concentration	GRS	<p>Demonstrate academic mastery in one of three areas of Biology: Ecology, Behavior & Evolution; Neurobiology; or Cellular & Molecular Biology.</p> <p>Attain research expertise, including grant writing experience, and complete original research that advances a specific field of study within one of three broad subject areas represented in the department: Ecology, Behavior & Evolution; Neurobiology; or Cellular & Molecular Biology.</p> <p>Attain teaching experience and expertise in one of three broad areas of Biology: Ecology, Behavior & Evolution; Neurobiology; or Cellular & Molecular Biology.</p> <p>Attain the skills and qualifications needed for employment in an academic, government, or private sector position related to the life sciences.</p>	https://www.bu.edu/academic/grs/programs/biology/phd/
Earth Sciences	MA	GRS	<p>Demonstrate knowledge of fundamental concepts in earth sciences, including intermediate and advanced principles of one or more of the following subdisciplines: geology, geochemistry, geophysics, surface processes, and deep time.</p> <p>Apply a range of earth sciences field and laboratory methods toward solving quantitative problems in one or more core disciplinary areas in geology, geochemistry, geophysics, surface processes, and deep time.</p> <p>Communicate effectively, both verbally and in writing, advanced concepts in earth sciences.</p> <p>Demonstrate understanding of the broader impacts of earth sciences research for society.</p>	https://www.bu.edu/academic/grs/programs/earth-environment/ma/
Earth Sciences	PhD	GRS	<p>Demonstrate knowledge of fundamental concepts in earth sciences, including intermediate and advanced principles of one or more of the following subdisciplines: geology, geochemistry, geophysics, surface processes, and deep time.</p> <p>Apply a range of earth sciences field and laboratory methods toward solving quantitative problems in one or more core disciplinary areas in geology, geochemistry, geophysics, surface processes, and deep time.</p> <p>Communicate effectively, both verbally and in writing, advanced concepts in earth sciences.</p> <p>Demonstrate understanding of the broader impacts of earth sciences research for society.</p>	https://www.bu.edu/academic/grs/programs/earth-environment/phd/
Earth & Environment	MA	GRS	<p>Demonstrate intermediate knowledge of the fundamental concepts and topics in a specific subfield of Earth & Environment.</p> <p>Demonstrate understanding of key research questions, the research design process, and the quantitative and/or qualitative methods used in a specific subfield of Earth & Environment.</p> <p>Communicate research questions and results to the scientific community and communicate about problems in Earth & Environment to a broader audience.</p> <p>Integrate, synthesize, and apply scientific knowledge to societal problems, such as the sustainable use of energy and water resources, the identification and mitigation of risks posed by climate change and natural hazards, and the consequences of human activities on the environment.</p>	https://www.bu.edu/academic/grs/programs/earth-environment/ma-in-earth-environment/

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Earth & Environment	PhD	GRS	<p>Demonstrate advanced knowledge of the fundamental concepts and topics in a specific subfield of Earth & Environment.</p> <p>Demonstrate understanding of key research questions, the research design process, and the quantitative and/or qualitative methods used in a specific subfield of Earth & Environment.</p> <p>Communicate research questions and results to the scientific community and communicate about problems in Earth & Environment to a broader audience.</p> <p>Integrate, synthesize, and apply scientific knowledge to societal problems, such as the sustainable use of energy and water resources, the identification and mitigation of risks posed by climate change and natural hazards, and the consequences of human activities on the environment.</p> <p>Produce and defend an original and substantial contribution to the field.</p>	https://www.bu.edu/academic/grs/programs/earth-environment/phd-in-earth-environment/
Energy & Environment	MS	GRS	<p>Demonstrate a thorough understanding of (a) one or more current energy and/or environmental issues along multiple dimensions (resources, technologies, and markets), and the relationship of these dimensions to (b) fundamental concepts from economics and other social science disciplines (e.g., political science/international relations, or law), and (c) fundamental concepts from natural science.</p> <p>Demonstrate knowledge of quantitative and qualitative theoretical frameworks and methodological approaches used to analyze environmental problems and understand the effectiveness of policy interventions.</p> <p>Quantitatively analyze data and perform simulation modeling to characterize the impacts of energy and environmental policies on human systems.</p> <p>Communicate effectively, verbally and in writing, concepts in the natural and social sciences as they relate to environmental issues, and demonstrate a thorough understanding of the broader societal consequences of one or more environmental problems and policies.</p> <p>Apply analytical techniques from statistics, spatial science, and economics to solve qualitative and quantitative problems in the design and implementation of policies to address environmental issues.</p>	https://www.bu.edu/academic/grs/programs/earth-environment/ma-energy-environment/
Remote Sensing & Geospatial Sciences	MS	GRS	<p>Demonstrate advanced knowledge of theory of remote sensing and GIS—including sensor systems, basic radiative transfer, cartographic projections and display, and spatial databases—and/or fundamental concepts in geospatial analysis and modeling techniques.</p> <p>Quantitatively analyze data to evaluate scientific hypotheses and arguments in remote sensing and geographic information science.</p> <p>Communicate effectively, both verbally and in writing, advanced concepts in remote sensing and geographic information systems.</p> <p>Demonstrate understanding of the broader impacts and applications of remote sensing and GIS for natural sciences, social sciences, and society at large.</p> <p>Apply a range of geospatial analysis techniques, using remote sensing and GIS tools, toward solving quantitative problems in one or more core disciplinary areas such as geography, ecology, environmental sciences, biogeosciences, urban planning, or natural resources management.</p>	https://www.bu.edu/academics/grs/programs/earth-environment/ma-remote-sensing/
Geography	MA	GRS	<p>Demonstrate advanced knowledge of the fundamental concepts and topics in a specific subfield of geography and environment.</p> <p>Demonstrate understanding of the quantitative and/or qualitative methods used in a specific subfield of geography and environment and use this knowledge to solve complex problems in geography and environment.</p> <p>Critically evaluate scientific and causal arguments.</p> <p>Communicate effectively about concepts and problems in geography and the environment.</p>	https://www.bu.edu/academic/grs/programs/earth-environment/ma-2/

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Global Development Economics	MA	GRS	<p>Demonstrate a thorough understanding of fundamental economic principles and be able to apply these ideas to analyze public policies, business practices, and real-world events.</p> <p>Have the ability to apply mathematical methods, through modeling and large-scale data analysis.</p> <p>Become conversant in current issues, knowledge, and policy debates on global development in the arenas of economics, international relations, the environment, and public health.</p> <p>Acquire the practical experience needed for professional careers in global development.</p> <p>Be able to conduct scholarly and/or nonacademic work in a professional and ethical manner.</p>	https://www.bu.edu/academic/grs/programs/economics/ma-global-development-economics/
Applied Sustainability	Certificate	MET	<p>Analyze the key areas of sustainability, including the legal and political dimensions of environmental protection and regulation to develop optimized sustainable solutions.</p> <p>Evaluate diverse points of view embedded within temporal, environmental, sociopolitical, economic, or technological contexts.</p> <p>Assess the principal approaches, methods, and strategies for critical inquiry regarding planning sustainable solutions.</p> <p>Apply scientific and social-scientific knowledge to multidisciplinary practice.</p> <p>Utilize the triple-bottom-line (environmental, economic, and social metrics) approach to sustainability to evaluate the various perspectives, policies, and/or practices for achieving equitable sustainability.</p>	https://www.bu.edu/academic/met/programs/urban-affairs/applied-sustainability/
City Planning	MCP	MET	<p>Understand and apply knowledge of the history and theory of urban and regional development, the structure and functions of urban systems, local and national policymaking processes, and the role of planning to create sustainable outcomes.</p> <p>Explain and assess the economic, environmental, political, social, and equity issues inherent in policy work and planning practice.</p> <p>Apply quantitative and qualitative research skills to theory-building, data-gathering and analysis, and planning and policymaking processes.</p> <p>Create relevant policy and planning solutions that incorporate the diverse perspectives of various stakeholders, including those of minority and disadvantaged communities.</p> <p>Mediate and communicate effectively in public (community) and policy settings.</p>	https://www.bu.edu/academic/met/programs/urban-affairs/city-planning/
Urban Affairs	MUA	MET	<p>Understand and apply knowledge of the history and theory of urban and regional development, the structure and functions of urban systems, local and national policymaking processes, and the role of planning to create sustainable outcomes.</p> <p>Explain and assess the economic, environmental, political, social, and equity issues inherent in policy work and planning practice.</p> <p>Apply quantitative and qualitative research skills to theory-building, data-gathering and analysis, and planning and policymaking processes.</p> <p>Create relevant policy and planning solutions that incorporate the diverse perspectives of various stakeholders, including those of minority and disadvantaged communities.</p> <p>Mediate and communicate effectively in public (community) and policy settings.</p>	https://www.bu.edu/academic/met/programs/urban-affairs/mua/

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Urban Policy & Planning	Certificate	MET	<p>Understand the history and theory of urban and regional development, the structure and functions of urban systems, local and national policymaking processes, and the role of planning.</p> <p>Explain and assess the economic, environmental, political, social, and equity issues inherent in planning theory and practice to develop effective policy for urban development.</p> <p>Create strategic policy and planning solutions that incorporate the diverse perspectives of various stakeholder groups, including those of minority and disadvantaged communities.</p>	https://www.bu.edu/academic/met/programs/urban-affairs/graduate-certificate-in-urban-policy-planning/
Global Policy	MA	Pardee	<p>Students will possess a deep understanding of how global, national, and local policies affect societal well-being.</p> <p>Students will demonstrate proficiency in key skills, including policy analysis, decision making and negotiation, and oral and written communication.</p> <p>Students will be able to ethically deliberate the varied impacts of policy decisions on diverse regions, populations, and stakeholders.</p> <p>Students will demonstrate in-depth policy-relevant empirical expertise in their chosen environmental, developmental, or public health specialization, possess comprehensive understanding of global environmental, developmental, or public health policy, and be able to apply their skills and knowledge to the solution of a practical environmental, developmental, or public health challenge.</p>	https://www.bu.edu/academic/grs/programs/international-relations/ma-in-global-policy/
Energy and Environmental Sustainability	Concentration	QST	<p>Description: With the Part-Time MBA Energy & Environmental Sustainability concentration (EES), you'll cultivate your passion for energy and sustainability and could find yourself in a role working in areas like: life science, insurance, medical devices, or hospital administration. Wherever you end up, this concentration is for students looking to lead organizations increasingly concerned with climate change and environmental sustainability.</p>	https://www.bu.edu/questrom/degree-programs/part-time-mba/concentrations/energy-environment-sustainability/

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Environmental Hazard Assessment	Certificate	SPH	<p>Collect and analyze environmental data and articulate the characteristics of major chemical, physical, and biological hazards.</p> <p>Interpret measured or modeled concentrations or doses of hazards compared with risk-based and non-risk-based criteria and guidelines.</p> <p>Evaluate the influence of susceptibility based on a hazards' biological mode of action, and vulnerability on health risks for major environmental determinants of human disease.</p> <p>Identify defensible intervention and prevention strategies to improve health through reduction in exposures to environmental hazards.</p> <p>Critically assess articles related to environmental impacts on health, analyzing the strength and validity of the hypothesis, study design and methods, results, conclusions, and public health significance of primary research studies.</p>	https://www.bu.edu/academics/sph/programs/mph/environmental-hazard-assessment/
Population Health Research	MS	SPH	<p>Critically evaluate research reports and publications,</p> <p>Design data collection and management plans,</p> <p>Analyze and synthesize research findings to inform evidence-based policies or recommendations,</p> <p>Develop a scientific hypothesis and design a research study to test the hypothesis, and</p> <p>Communicate research results in technical and non-technical terms to potential stakeholders.</p>	https://www.bu.edu/academics/sph/programs/ms-in-population-health-research/
Environmental Health	PhD	SPH	<p>Communicate the basic characteristics of major chemical, physical, and biological hazards and the properties that govern the hazards' behavior in the environment.</p> <p>Examine the scientific characteristics (e.g., route of exposure, dose response, mode of action) of major chemical, physical, and biological hazards that result in human health risk.</p> <p>Analyze genetic, physiologic, and social factors that affect the susceptibility to adverse health outcomes following exposure to environmental hazards.</p> <p>Critically evaluate and interpret the hypothesis, experimental design, methods, and results presented in a paper from a technical journal article in an environmental health discipline (toxicology, epidemiology, exposure assessment, environmental policy).</p> <p>Formulate testable hypotheses about critical questions in environmental health (epidemiology, toxicology, exposure assessment, environmental policy).</p> <p>Design and implement data collection strategies and rigorous evaluations to test hypotheses using novel or current techniques.</p> <p>Analyze and interpret environmental health data.</p> <p>Determine the appropriate intervention strategies for specific environmental health problems.</p> <p>Prepare scientific manuscripts for publication in peer-reviewed journals in the field of environmental health.</p> <p>Communicate scientific results at national and/or international conferences in the field of environmental health.</p>	https://www.bu.edu/academics/sph/programs/environmental-health/phd/