

# Environment & Sustainability (ERTH)

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## **ERTH 1008 Intrpt: Ecological Belonging 1 Credit**

In this course, you will be introduced to 'ecological belonging,' a way of thinking about our deep interconnectedness with the environment, and how we are influenced by the stories, patterns, and paradigms that shape our society. These influences are often invisible to us in our daily lives. Making them visible is a first step in an ongoing practice that connects our inner relationship to the environment with the outer forces that define and shape our world. This course will meet during the first five weeks of the semester.

*Level:* Undergraduate

*Corequisites:* ERTH 1009

*Course attribute:* Core:HALC - Hum, Art, Lit, Cul

*Grading:* Main Campus (UGrad, Grad)

## **ERTH 1009 Intgrt: Cultivating Wellbeing 1 Credit**

This 1-credit course is part of the first year Foundations sequence in the Bachelors of Science in Environment & Sustainability. This course must be taken in conjunction with ERTH 1008 (Ecological Belonging). The course meets during the last four weeks of the semester and the final exam time slot.

*Level:* Undergraduate

*Corequisites:* ERTH 1008

*Course attribute:* Core:HALC - Hum, Art, Lit, Cul

*Grading:* Main Campus (UGrad, Grad)

## **ERTH 1018 Environment and Power 1 Credit**

In this course, you will be introduced to the relationship between power and environmental change. Together, we will cultivate an understanding of the past and future of environmental inequities and differentiated environmental risk impacts, especially for marginalized communities, in the context of future action and intergenerational justice and ethics. We will ground the work of this course with a practice that integrates core values of empathy, compassion and humility into analytical and technical perspectives of ecological issues including land, water, and energy. This class will meet for the first five weeks of the semester. (Note that completion of all four Interruption & Integration modules, ERTH 1008/1009 and 1018/1019, will satisfy the HALC requirement.)

*Level:* Undergraduate

*Corequisites:* ERTH 1019

*Course attribute:* Core:HALC - Hum, Art, Lit, Cul

*Grading:* Main Campus (UGrad, Grad)

## **ERTH 1019 Embodied Transformation 1 Credit**

How do we incorporate environmental engagement into our lives and communities as a form of embodiment, and how can this process help cultivate possibilities for transformation of ourselves and the structures of our societies? This is a course that is heavily steeped in imaginative, creative, and experiential learning to encourage experimentation, empathy, and free ideating. Grounded in ongoing collaboration, a space that facilitates this will be structured to support communities of students working on creative projects alongside faculty and external partners. in a studio-type environment This class meets the last 5 weeks of the semester. (Note that completion of all four Interruption & Integration modules, ERTH 1008/1009 and 1018/1019, will satisfy the HALC requirement.)

*Level:* Undergraduate

*Corequisites:* ERTH 1018

*Course attribute:* Core:HALC - Hum, Art, Lit, Cul

*Grading:* Main Campus (UGrad, Grad)

## **ERTH 1029 Closing Integration:Simulation 1 Credit**

This 1-credit course (ENST-1029) is an important part of the typical Foundations sequence in the Joint Environment and Sustainability Program (JESP). During this course, students will engage in a simulation/design challenge aimed at developing skills in systems change and collaborative problem-solving, in different habitats and contexts, from campus locations to global settings. This course should be taken in conjunction with ENST-1028-01. This course will meet 1 of the 4 Interruption requirements in the JESP degree.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

## **ERTH 1050 Env't Sust Science I 3 Credits**

This course is the first in a two-semester series and will examine the scientific process, principles, and methodologies required to understand the interrelationships of the natural world; we will identify and analyze environmental problems and evaluate potential solutions for resolving or preventing these issues. Specific topics will include human population growth, ecosystem services, biogeochemical cycles, ecology and evolution, biodiversity and conservation, food resources, and climate change. Weekly hands-on experiences will build on topics introduced and discussed during class time. These labs and experiential components will emphasize the applications of content covered in class and will also include field trips to relevant, course-specific sites. This course, taken in conjunction with ERTH-1051, will meet the Foundations in Environment and Sustainability Science I requirement in the BSES degree.

*Level:* Undergraduate

*Corequisites:* ERTH 1051

*Grading:* Main Campus (UGrad, Grad)

*Course registration restrictions:*

Enrollment is limited to students with a major in Science, Tech, Int'l Affairs, Science, Tech, Int'l Affairs, Science, Tech, Int'l Affairs or Science, Tech, Int'l Affairs.

Enrollment limited to students in the MS-ENIA program.

**ERTH 1051 Env't Sust Science I Lab 1 Credit**

This is an experiential lab designed to expand and reinforce material students encounter in ERTH-1050. ERTH-1050 and -1051 are complementary and interwoven courses that will assume up-to-date knowledge and participation in each portion. Lab exercises will demonstrate correct use of standard tools in environmental science to observe, recognize, and quantify local biota and abiotic factors (campus environment and beyond). Students will interact with environmental stakeholders and reflect on the value of sustainable practices. Assignments will challenge students to make effective use of science communication for scientific audiences (experimental design, data representation and interpretation, and technical writing) and for a general audience (translational writing). This course, taken in conjunction with ERTH-1050, will meet the Foundations in Environment and Sustainability Science I requirement in the BSES degree.

*Level:* Undergraduate

*Corequisites:* ERTH 1050

*Grading:* Main Campus (UGrad, Grad)

**ERTH 1060 Env't Sust Science II 3 Credits**

This course is the second in a two-semester series and will focus on the evidence-based anthropogenic aspects of environmental science where students will apply scientific processes and analyses learned in the first semester. Specific topics that will be covered include: water and air pollution, solid and hazardous waste, food production and agriculture, and energy sources including fossil fuels, nuclear, and sustainable options. Weekly hands-on experiences will build on topics introduced and discussed during class time. These labs and experiential components will emphasize the applications of content covered in class and will also include field trips to a number of relevant, course-specific sites. This course, taken in conjunction with ERTH-1061, will meet the Foundations in Environment and Sustainability Science II requirement in the BSES degree.

*Level:* Undergraduate

*Corequisites:* ERTH 1061

*Grading:* Main Campus (UGrad, Grad)

**ERTH 1061 Env't Sust Science II Lab 1 Credit**

This is an experiential lab designed to expand and reinforce material students encounter in ERTH-1060. ERTH-1060 and -1061 are complementary and interwoven courses that will assume up-to-date knowledge and participation in each portion. Lab exercises will demonstrate correct use of standard tools in environmental science to observe, recognize, and quantify local biota and abiotic factors (campus environment and beyond). Students will interact with environmental stakeholders and reflect on the value of sustainable practices. Assignments will challenge students to make effective use of science communication for scientific audiences (experimental design, data representation and interpretation, and technical writing) and for a general audience (translational writing). This course, taken in conjunction with ERTH-1060, will meet the Foundations in Environment and Sustainability Science II requirement in the BSES degree.

*Level:* Undergraduate

*Corequisites:* ERTH 1060

*Grading:* Main Campus (UGrad, Grad)

**ERTH 1101 Enviro Ethics 3 Credits**

In this course, we investigate the ethics of human interaction with the world around us. What is nature? What is wilderness? Is there such a thing? How should we design our parks, our cities, our agricultural systems—according to what values? Who should design these systems, manage them, and so on? How do we weigh environmental values when they conflict? How do we maintain a responsible hope in the face of existential environmental threats? Topics in the course will include environmental justice, biodiversity, animal ethics, climate change, consumerism, suburban sprawl, zoning, food ethics, and more. This course will meet the Environmental Ethics requirement in the BSES degree, as well as the CAS Philosophy (Intro/Ethics) requirement.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 1264 CC: The Sci Behind the Stories 3 Credits**

Climate change is reshaping the planet, with record-breaking heat waves, vanishing glaciers, and shifting ecosystems making headlines—but alongside scientific evidence, misinformation persists. This course explores the fundamental principles of climate change, examining the natural and human-driven forces that shape climate, the evidence for global change, and its cascading effects on ecosystems and human societies. Students will analyze past and present climate records, investigate planetary boundaries, and assess the role of biodiversity in maintaining stable ecosystems. Drawing on principles from biology, chemistry, ecology, environmental science, and climatology, this course emphasizes data interpretation, scientific reasoning, and communication. Through case studies and hands-on data analysis, students will explore how climate change affects food and water resources, public health, and economic stability. By the end of the course, students will have the tools to critically evaluate claims about climate change and its impacts.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 1987 Sust. in a Complex World 3 Credits**

This course provides a foundational understanding of the multifaceted concept of sustainability, exploring its historical roots, theoretical underpinnings, and practical applications in addressing complex global challenges. This course will delve into the interconnectedness of environmental, social, and economic systems, examining how human activities impact the planet and how we can foster more resilient and equitable futures. Students will explore the evolution of sustainability at the intersections of ecological systems and industrial society, and the tools used to investigate and address sustainability challenges at multiple scales. Specifically, the course will introduce key analytical frameworks such as industrial ecology, urban metabolism, and life cycle assessment, and introduce quantitative approaches through sustainability analytics and systems dynamics modeling. Through readings, discussions, and case studies, students will develop a critical perspective on sustainability issues and gain tools for evaluating and promoting sustainable development.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2020 Theories of Change 3 Credits**

This course will meet the Theories of Change requirement for the JESP degree.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2027 Environmental Law 3 Credits**

The goal of this course is to provide a broad perspective on the field of environmental law. Some classes will replicate the structure of a traditional law-school course, focusing on where a law came from, how it works, and problems with the systems currently in place. But laws are made by people, and people like a good story. Many classes will focus on these stories, stories that developed into arguments that have created or changed the law. Along the way, core questions to be explored will include: What is environmental law? Where does it come from? How does it work? What are some of the problems with the system of laws currently in place? How does the law address (or not) critical issues in areas such as food, water, energy, biodiversity, and climate?

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2110 Experiential Rotations 3 Credits**

Experiential Rotation creates space for students to explore a range of impactful and influential areas of study at the core of environment and sustainability work. This exposure is designed to offer students an in depth exploration of the central questions, culture, and practices that animate the following areas: Environmental Justice; Environmental Science; Environmental Governance; Environmental Culture. These rotations act as a bridge between the structured opening years and the more flexible closing years of the BSES degree. The rotations focus on giving students the opportunity to deeply explore many areas relevant to environment and sustainability, and as such will help inform the paths that students choose to take for their custom pathways, capstone projects, environmental immersions, and elective courses. The course will feature two complementary threads. The first thread is a set of experiential learning opportunities specific to each of the areas of study. Each semester, we will curate a set of guest speakers and experiential opportunities to directly engage with affiliated practitioners. The second thread will focus on applying what we've learned from the experiential opportunities to relevant environmental issues. At the beginning of the semester we will ask everyone to identify an environmental issue. Throughout the semester you will practice developing approaches that respond to your chosen issue. We'll do this through a series of mini scenarios that will ask you to apply what you've learned from each area of study to a complex challenge. This work will culminate in a final proposal and presentation of how you might respond to the environmental issue you identified at the start of the semester. This class meets in REGH 391.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2239 Integration: Formation 3 Credits**

Formation is a second-year course for students seeking the BSES degree. The course embraces the Jesuit concepts of formation, discernment, and care for the whole person. Throughout the course, we will work on personal, professional, and intellectual formation specifically focusing on how we understand and engage in environmental work. This course serves as a bridge between the first two years of the BSES that take place on Georgetown's Hilltop Campus, and the second two years that take place at the Capitol Campus. This shift in location is mirrored by a shift in the curriculum as you plan for your Custom Pathway, Professional Development experiences, Capstone work, and more.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2240 Environmental Justice 3 Credits**

Environmental issues impact our lives from matters of personal health to global warming, and all points in between. While in an ecological sense it might be said that environmental issues know no borders, in social, historical, and political terms the compartmentalization of opportunities and impacts is more pronounced. How are environmental benefits and burdens distributed in society, both within and among nations, and what factors influence these patterns of distribution? In this course we will look at problems of justice as they intersect with environmental concerns, including food deserts and waste facilities to climate displacement and loss of arable lands. At the same time, we will explore various forms of environmental activism, from protests and community organizing to international networks and cutting-edge policy initiatives. The aim is to examine baseline ethical challenges of environmental justice through theoretical and applied lenses, which may include historical and contemporary case studies. This course will meet the Environmental Justice requirement in the BS-ES degree.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

*Equivalent to* ENST 2240

**ERTH 2242 Env't Action Workshop 1 Credit**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2262 Shaping Env't Sci Policy 4 Credits**

This is both a project course (involving a semester-long group project) and a reading seminar. It is designed with two broad, intertwined goals. The first is to get students to think more deeply about the ways science is used – and the ways it should be used – to inform, shape and implement public policy. The second is to provide students with practical experience in using science in the policy arena. In past years, some student groups have succeeded in changing federal policy. Class time will be used both to provide specific, practical guidance on how to participate in the policy process, and to probe deeper questions about the role of science in making policy. The project work is done in groups. (More information below.) Each group will need to meet and communicate regularly to plan, exchange information and carry out the project. The projects also require time for research, and for emails, calls and meetings with issue experts and legislative offices and others need to bring the project to fruition. At least one member of each group will participate in weekly office hours with the course professors to discuss progress and receive guidance on the project. This is an intensive course. Students should expect to spend an average of at least 4-6 hours a week (outside of class time and office hours) on reading assignments and project work. Note: this course will have a required recitation section each week, scheduled during the semester by the instructor.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2290 Env't Communication 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2292 Marine Conservation Sci Pol 3 Credits**

The ocean provides vital services for everyone, including food, jobs, recreation, protection from storms, medicine, and even a good chunk of the oxygen we breathe. But the ocean, and many of the beloved wild animals that live there, face serious conservation challenges, from threats including overfishing, habitat destruction, pollution, and climate change. Fortunately, all of these problems have data-driven evidence-based solutions backed by science, but many of those solutions are not well-known among the well-intentioned public, and many of the solutions that the public have heard about are ineffective at best. In this course, we'll discuss the science and policy of how to save the ocean, and how to spot popular solutions that are not supported by scientific evidence. We'll use an integrative and interdisciplinary lens bringing together science, law, and the humanities, using real-world examples from Washington, DC and beyond. Topics discussed will include sustainable seafood, ocean plastic pollution, deep sea mining, marine protected areas, endangered species conservation, and much more.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2341 Environmental Security 3 Credits**

Global climate change and biodiversity loss are among the most pressing challenges of the 21st century. These crises are unfolding alongside rapid globalization, technological change, shifting demographics, and evolving systems of global governance. Together, they are reshaping how scholars and policymakers understand security and elevating the role of environmental factors in global affairs. This course examines the concept of environmental security, a term whose meaning and scope remain widely debated. Through multidisciplinary readings, seminar discussions, and applied research, students will explore how environmental security intersects with other forms of security, including human security and the water-energy-food nexus. The course begins by situating environmental security within international relations theory, then examines key drivers of insecurity such as climate-induced migration, environmental degradation, resource-based conflict, and environmental crime and justice. The course concludes by assessing how environmental security is shaping U.S. policy today and its implications for future generations.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2410 Topics in Env't. Science Policy 1 Credit**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2477 Ethics of Tech in the Envir 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2510 Env't History of DC 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2662 Eco-Spirit., Ecofeminism EJ 3 Credits**

This course will explore the concepts of ecological spirituality and ecofeminism in relation to environmental justice. Following Joanna Macy in analyzing "the three stories of our time," students will identify spiritual, communal, and political narratives and practices that contribute to protecting "Business As Usual" (the Industrial Growth Society and exploitative power structures); burning out in "The Great Unraveling" (the destabilization and destruction of our eco-social systems); or choosing "The Great Turning" (joining in collaborative action for the sake of all life). Students will study current environmental justice campaigns with an eye toward understanding the underlying influence of eco-spirituality on EJ movements, and its relationship to the values articulated in EJ principles. Through project-based and discursive learning, this course will invite students to reflect on the interconnection of their interior lives and embodied choices to ecological and social systems, and to apply these reflections to their understanding of environmental justice.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2826 Bugs Fungus Among Us 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2910 Ecology of the ChPB Watershed 3 Credits**

This 5-week course focuses on the Chesapeake Bay watershed as habitat for organisms, and the environmental challenges affecting this system. Students will gain a foundational understanding of the watershed's ecosystems, focusing on biodiversity, species interactions, and ecological processes. In the field, students will develop proficiency in biodiversity sampling techniques and ecological data collection and analysis methods.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2920 Env't Pol of the CB Watershed 3 Credits**

This 5-week course delves into the environmental policies shaping the Chesapeake Bay watershed, focusing on the challenges of pollution, habitat loss, climate change, and environmental justice. Through case studies, guest lectures, and policy analysis, students will gain insight into how various stakeholders, including federal, state, and local governments, as well as NGOs, collaborate to protect and restore the bay's ecosystems.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2950 Clim Change Ethics Justice 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 2960 Philosophy of Nature 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3110 Environmental Methods 3 Credits**

This course will count towards a methods requirement for the JESP degree.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3220 Peer Leadership 3 Credits**

The Peer Leadership course is a requirement for the BSES degree and will prepare students for active roles in mentorship of new students in the Joint Environment and Sustainability Program. Topics will provide training in team building, group facilitation, problem-solving, decision-making, and communication, with a focus on increasing inclusivity and sense of belonging for peers entering this field. A subset of discussions will focus on peer teacher training, and will emphasize common misconceptions and barriers to learning. Students will be challenged to design activities to support engagement in and outside of the classroom to help cultivate a learning community.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3259 The Politics of Nature 3 Credits**

This interdisciplinary seminar examines how people relate to “nature” while developing problem-solving approaches to environmental issues through comparative case analysis. Students explore how environmental issues emerge through the interplay of culture, political economy, diverse environmentalisms, and multiple governance configurations across the Global North and South. The course bridges critical environmental theory with practical policy intervention by analyzing successful and failed environmental initiatives worldwide. Through scaffolded research projects, students learn to translate complex socio-ecological problems into evidence-based solutions tailored to specific audiences—from UN assemblies to local communities. Core inquiries include: How do development patterns shape environmental outcomes? What explains mobilizations for environmental justice and what makes movements successful? How can we move from critique to implementation in addressing climate change? We analyze the politics of land, natural resources, and climate—through issues ranging from deforestation and mining to oil spills and decarbonization efforts. Students develop skills in interdisciplinary analysis, solution design, and policy writing while examining concrete environmental issues of their choosing.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3301 Environ. Research Experience 1 Credit**

-This Environmental Research Experience course will involve field-based projects with teams of students addressing interrelated environmental science questions within a common theme. Teams will be guided to develop hypotheses, conduct data collection (field and lab work), complete data analysis, and integrate data with scientific literature to write a final scientific report and communicate findings. Course research themes will vary by faculty instructor.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3307 Agriculture and Sustainability 3 Credits**

This course is designed as a lecture-discussion to explore topics related to agriculture and sustainability that influence global food security. This course is interdisciplinary in nature touching on environmental science, the economy, innovation and technology, policy, and justice. Defines and applies basic principles of sustainability to address urgent agricultural, environmental, and societal challenges. Students will participate in interactive discussions, investigate current global challenges, and engage in critical thinking to derive solutions to these challenges.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

*Equivalent to ENST 3307*

**ERTH 3322 Current Issues: Envntl Science 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3360 Environmental Remote Sensing 3 Credits**

This course explores the world of imagery and other data captured by satellites, and how those data are used to understand, monitor, and protect our planet. Geographic information system (GIS) tools such as ArcGIS, R, and Google Earth Engine will be used to analyze datasets and create maps and other visualizations. Particular focus will be placed on the current, historical, and potential applications of remote sensing data.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3380 Environmental GIS 3 Credits**

Students will learn how to work with geospatial data to understand and address environmental issues. Popular GIS tools (such as ArcGIS) will be used to create maps for the effective communication of many types of environmental data. Relevant applications in areas such as climate science, biodiversity monitoring, and human-ecosystem interactions will be explored. More advanced topics such as geospatial statistics, gap-filling, and filtering will also be covered. This course will count towards a quantitative requirement for the JESP degree.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3450 Environmental Biotechnology 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3490 Climate Society 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3550 Climate, Culture, Resilience 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3570 Environmental Health 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3575 Yucatan Conserv Culture Sust 3 Credits**

In this course, we will examine the conservation of tropical forests, coastal ecosystems and mangroves habitats, the culture of the current and pre-European Mayan communities, and the sustainability of the environment and culture in the Yucatán. The Yucatán Peninsula, located in southern Mexico, separates the Caribbean Sea from the Gulf of Mexico. Encompassing the three states of Campeche, Yucatán, and Quintana Roo, the peninsula's forest ecosystem is the largest continuous area of tropical vegetation in the Americas after Amazonia, containing 10 million hectares of diverse forests and serving as a vital carbon sink for the planet. The area has been home to the Mayan civilization for the past 8,000 years, and Mayan descendants and culture continue to persist. The Yucatán is an ideal location to introduce students to a broad range of real-world environmental and sustainability issues while gaining a deep understanding about the challenge of balancing short-term human needs with the long-term health of environmental systems. The class will meet weekly throughout the spring semester. Class meetings will cover content and skills to prepare for the trip and research projects students will undertake while doing field research. We will visit the Yucatán during spring break from February 28- March 8. While on-site in the Yucatán, students will work in small teams to develop and carry out inquiry-based research projects. Students will hear from and work with experts in the field to aid in project development. Upon return from the Yucatán, we will continue to have class meetings where student research teams will meet to complete their research projects and submit their final product by the end of the semester.

\*\*\*Students are strongly encouraged to have taken either Foundations in Environmental Science I (ERTH 1050/1051) or Foundations in Biology II (1204/1214) prior to this course.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3610 Gov. Policy of The Commons 3 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 3750 Global Health CC 3 Credits**

We are in the midst of what has been termed the Anthropocene Era, defined as a period in which human activities have caused significant changes to our planet. Such changes are having impacts on human health worldwide (not to mention the other living things we share our planet with). In this course, we will first examine what we mean by global health, then discuss how humans have impacted the climate, and finally wind these two threads together to understand how these changes affect human health now and how we can use current information to predict future change. In this course, we will investigate these fields of study from a variety of standpoints: scientific, economic, emotional, philosophical, etc. We will develop an understanding of the current state of thought by delving into the known information and then using this information to move into the unknown to examine current questions and controversies.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4010 Environmental GIS 3 Credits**

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4040 Int'l Community Based Conserv 3 Credits**

The conservation of natural resources and biodiversity is an international priority in the current period of global change. In this course, students will assess how natural resources can be used sustainably through ethical conservation practices led by local and Indigenous communities. We will examine case studies from around the world, including applications of traditional and local ecological knowledge in the Arctic, the 'wildlife economy' paradigm in Africa, and decentralized forest governance in the Amazon rainforest, among others. We will use a discussion-based approach to assess the strengths and weaknesses of diverse approaches to management to come up with promising practices which prioritize sustainable use, biodiversity conservation, and the livelihoods of local communities. This course blends the science, policy, and ethics of international natural resource conservation.

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4050 Prof Development Experience 4 Credits**

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4051 Professional Development 4 Credits**

TBD

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

*Equivalent to EARTH 4050*

**ERTH 4100 Capstone 1 2 Credits**

The BS-ES Capstone course sequence involved two 3-credit courses taken over the course of the year. The first course in the sequence EARTH-4100 is focused on developing a research question, project plan, and connections with intended partners. The second course EARTH-4200 is focused on directly implementing their capstone project, evaluating its impact, and communicating the findings to a broader audience.

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4110 Env't Remote Sensing 3 Credits**

This course explores the world of imagery and other data captured by satellites, and how those data are used to understand, monitor, and protect our planet. Geographic information system (GIS) tools such as ArcGIS, R, and Google Earth Engine will be used to analyze datasets and create maps and other visualizations. Particular focus will be placed on the current, historical, and potential applications of remote sensing data.

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4116 Bugs Fungus Among Us 3 Credits**

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

*Equivalent to EARTH 2826*

**ERTH 4156 Life on High Seas: Eco Pol 3 Credits**

Picture in your mind a diversity of animal species. Now think of the many laws designed to protect them. Now imagine that there is another Earth. It is populated by species wildly different from what you imagine: 300 foot long creatures shaped like ropes, single cells the size of softballs, colonial animals growing to over 60 feet long and wide enough to crawl inside. Scientists know precious little about this alien world. The laws that protect Earth's biodiversity don't apply here. This is the High Seas. The high seas represent roughly 43% of Earth's surface, larger than the area of Mars. It belongs to no country. It is under no single jurisdiction. It is one of Earth's final scientific and legal frontiers. In this class we will explore the ecology and history of the High Seas. You will learn about the diverse ecosystems on this other half of Earth, from the ocean's surface to the abyssal plane. You will meet some of this world's remarkable residents, and learn how fishing, commerce, and mining may be impacting them. You will also learn how humans have used the high seas, from historical pirates to present day smuggling, enslavement, and murder. We will explore the legal, social, and economic structure of the High Seas, and you will be encouraged to explore your own interests on this alien Earth.

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4160 Marine Field Research Methods 3 Credits**

The ocean connects and affects us all, but faces many serious conservation challenges. Solving these problems requires data and evidence collected by scientifically rigorous methods. This field course will expose students to a wide variety of scientific methods used in marine and coastal science, both in the classroom at Georgetown and as part of a weeklong trip on the Research Vessel Garvin in South Florida. Students will explore a variety of habitats including the Everglades, mangrove forests, seagrass meadows, and coral reefs. Students will gain hands-on experience with methods including transect and quadrat surveys for measuring biodiversity, seine netting for coastal fish monitoring, and taking a variety of biological samples from sharks. In the classroom, we'll discuss the pros and cons of different methods and discuss a variety of case studies of how the data they gather is used. Students will also do a semester-long course project using one or more of the methods we discuss in class, collecting data during our field expedition. \*\*\*NOTE: students will need to pay their own airfare for the required 5-night field expedition to Miami, FL that takes place during spring break (March 1-6); we will work with enrolled students to coordinate schedules of arrival and departure for the field component of this course; the remainder of costs including food and lodging will be covered by the E&S program

*Level:* Graduate, Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 4200 Capstone II 3 Credits**

ERTH-4200 is focused on directly implementing a capstone project, evaluating its impact, and communicating the findings to a broader audience. As an interdisciplinary and challenge-based degree program that emphasizes student agency in the curriculum (e.g., through the custom pathways), the capstone experience is designed to support a diverse set of student interests while deepening a set of applied research skills and methods. The course will entail completion of the capstone projects from the fall proposal process, and will culminate in students organizing and presenting at a closing symposium.

*Level:* Undergraduate

*Prerequisites:* ERTH 1400

*Grading:* Main Campus (UGrad, Grad)

*Course registration restrictions:*

Enrollment limited to students in the BS-ERTH program.

**ERTH 4949 Tutorial: ERTH 0-5 Credits**

*Level:* Undergraduate

*Grading:* Main Campus (UGrad, Grad)

**ERTH 7949 ERTH Tutorial 0-3 Credits**

*Level:* Graduate

*Grading:* Main Campus (UGrad, Grad)