

SUSTAINABILITY STUDIES

Program Overview

Environmental sustainability is clearly a defining issue of the 21st century. Alarming patterns of environmental degradation have emerged since the beginning of the industrial revolution. Creating social, systematic, and commercial structures that reverse this trend by explicitly acknowledging and nurturing the interconnectedness of the natural and human environment is an important challenge facing Rider's graduates. Educators, entrepreneurs, chemists, journalists, psychologists and analysts will all need to understand the ways that our economic, natural and social systems work together to sustain the collective human enterprise.

Concentrating on the interdependence of natural, economic and human systems, the sustainability studies minor helps students explore the complex task of protecting the earth while generating economic welfare and ensuring social justice. Because the minor draws on a network of approaches (social, scientific, economic), students will be equipped to take on increasingly pressing challenges in areas ranging from education and energy, communications and design to ecosystems management, business and government.

The program also provides students with opportunities to get under the hood, exploring what "going green" really means. Coursework is application-intensive. The introductory course will expose students to a wide range of issues, from food to packaging, from natural lands preservation to building sustainable communities. Other coursework complements students exploration of these issues. A broad range of internship and independent study opportunities are available for interested students. The capstone course brings together a team of students to address a real problem on the Rider campus, hopefully making significant changes along the way.

Students in the sustainability studies minor will take six courses (20-21 credits) in environmental and social sciences, ethics and business. Sustainability-related courses that contribute to the minor are offered within many majors. The introductory course is deeply interdisciplinary, drawing on expertise from across the University in the social sciences, business, history, philosophy, ecology, physics and marketing. After this introduction, students are expected to complete an independent study or internship project on or off campus that provides hands-on experience with the complex tasks required to make systems more sustainable. The capstone course draws on the interests and expertise of the enrolled students who together will identify a specific sustainability challenge on the Rider campus and devise, implement, and measure the effects of a plan to address it.

Minor Offered

- Minor in Sustainability Studies

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Program Website: Sustainability Studies (<http://www.rider.edu/sustainability-studies/>)

Associated Department: Earth & Chemical Science (<https://www.rider.edu/academics/colleges-schools/college-arts-sciences/science-technology-math/faculty-departments/earth-chemical-sciences/>)

Related Programs

- Accounting (<http://catalog.rider.edu/undergraduate/colleges-schools/business-administration/majors-minors-certificates/accounting/>)
- Environmental Sciences (<http://catalog.rider.edu/undergraduate/colleges-schools/arts-sciences/majors-minors-certificates/environmental-sciences/>)
- Environmental Studies (<http://catalog.rider.edu/undergraduate/colleges-schools/arts-sciences/majors-minors-certificates/environmental-studies/>)
- Global Supply Chain Management (<http://catalog.rider.edu/undergraduate/colleges-schools/business-administration/majors-minors-certificates/global-supply-chain-management/>)
- Political Science (<http://catalog.rider.edu/undergraduate/colleges-schools/arts-sciences/majors-minors-certificates/political-science/>)
- Sociology (<http://catalog.rider.edu/undergraduate/colleges-schools/arts-sciences/majors-minors-certificates/sociology/>)

Sustainability Studies Minor Requirements

(20-21 credits)

Code	Title	Credits
Foundation Courses		10
SUS 100	Introduction to Sustainability Studies	
ENV 100	Introduction to Environmental Sciences	
GSC 115	Introduction to Global Supply Chain Mgt.	
Choose one of the following philosophy courses:		3
PHL 202	Social Philosophy	
PHL 215	Environmental Ethics	
PHL 360	Contemporary Ethics	
Disciplinary Explorations ¹		3-4
Select one of the following:		
BHP 259	Honors Seminar: The Environment: a Conflict of Interest	
BIO 350	General Ecology	
ENG 218	Literature and the Environment	
ENG 322	Grant Proposals, Fundraising and Development	
ENV 200	Statistical and Computer Applications in the Natural Sciences	
ENV 205	Introduction to Geographic Information Systems	
ENV 220	Weather and Climate Change	
HIS 224	American Environmental History	
POL 215	Global Politics	
POL 328	Environmental Politics	
POL 329	Comparative Environmental Policy	
POL 330	Geopolitics of Energy	
SOC 225	Population Study	
Experiential Learning ²		3

SUS 490	Independent Study: Research and Creative Expression	
SUS 491	Internship in Sustainability	
Total Credits		19-20

¹ Or other special topics courses as reviewed by a quorum of the Department of Earth and Chemical Sciences faculty.

² Students must earn 3 credits total from SUS 490, SUS 491, or a combination of these two courses. SUS 491 may only be taken twice.

Courses and Descriptions

SUS 100 Introduction to Sustainability Studies 3 Credits

Sustainability investigates interconnections between our environment, economy, and society with the goals of promoting human welfare and planetary stewardship for current and future generations. Students will explore how human societies are altering the earth and investigate cutting-edge solutions to promote better qualities of life as well as the conservation of natural ecosystems on which our lifestyles depend. By exploring central themes of sustainability (systems approach, circular economies, carbon neutrality, environmental justice, and ecological restoration) through different academic lenses, students will appreciate the interdisciplinarity of the sustainability enterprise. Course may include field trips (on and off campus) and laboratory exercises (indoors and outside).

ENV 100 Introduction to Environmental Sciences 4 Credits

Examines how ecosystems function, with emphasis on the interactions between biological organisms and their physical environment, and the chemical processes that govern these interactions. The impact of human populations on natural ecosystems is investigated in detail using case studies from history and current events. The laboratory provides for hands-on experiences and/or short field trips to local sites for a better understanding of many of the concepts discussed. Weekday and weekend field trips may be required. Three hours of lecture and one three-hour lab per week. CLAS general education areas addressed: DP, SP, GP. **Corequisite(s):** ENV 100L.

ENV 100L Introduction to Environmental Sciences Lab 0 Credits

This lab is a co-requisite and must be taken with the corresponding course.

Corequisite(s): ENV 100.

GSC 115 Introduction to Global Supply Chain Mgt. 3 Credits

This course introduces students to components of global supply chains and issues of managing the global supply chain. It is designed as a survey course to give first or second year business students a general view of supply chain management at both domestic and international levels, as well as familiarize them with basic concepts and major challenges of supply chain management. Delivery of course material will include lectures and guest speakers from industry, and in-class logistics mini cases.

PHL 215 Environmental Ethics 3 Credits

A comprehensive introduction to environmental ethics that examines the major theoretical approaches, including anthropocentric (human-centered), zoocentric or sentientist (animal-centered), and biocentric or ecocentric (nature-centered) value systems, as well as the most important critiques of these ethical approaches. We will examine and analyze several classical ethical theories that are particularly relevant to a study of contemporary environmental controversies. We will also address specific issues such as biodiversity and wilderness preservation; human use of animals as food, entertainment, and research subjects; environmental racism and toxic dumping; sustainable development, population and consumption. Students will analyze and discuss the ethical dimensions of several contemporary environmental controversies. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

SUS 490 Independent Study: Research and Creative Expression 1-4 Credits

Immerses the student in applying sustainability principles in a field setting. Students are expected to assess the outcomes of their projects and communicate their results verbally and in writing to interested audiences.

SUS 491 Internship in Sustainability 1-4 Credits

A supervised work/service experience in an approved organization where students gain understanding and experience with applying sustainability principles. Placements may be in private, public, educational, non-profit or governmental organizations. Students are expected to include measurement and documentation of the environmental, social, and economic impact of their work. A minimum of 50 hours of work is required for one credit. At least 150 hours are required to earn 3 credits.

BHP 259 Honors Seminar: The Environment: a Conflict of Interest 3 Credits

Examines critical environmental issues such as global warming; food, water and energy resources; population trends; and global industrialization. Topics for context will include the origin of the elements, the origin of solar systems, and the origin of life as well as the basic principles of the current biotechnical revolution. Scientific understanding will be combined with knowledge about strategies for raising community awareness in order to (re)formulate public policy. In teams, students will be asked to define the problems; research available and prospective solutions; identify the technical, social, political, and economic constraints; and finally propose a workable strategy for making progress toward solutions.

BIO 350 General Ecology 4 Credits

An investigation of the processes that regulate the distribution of plants and animals throughout the biosphere. Relationships among species and their interactions with the environment are stressed. Quantitative analyses of experimental results and current research in basic and applied ecology are discussed. Laboratory activities explore conceptual models using both field activities and computer simulations. Three hours of lecture and one three-hour lab per week. One Saturday field trip (laboratory time will be adjusted accordingly). Prerequisite(s): BIO 115 with a minimum grade of C and BIO 116 with a minimum grade of C. **Corequisite(s):** BIO 350L.

ENG 218 Literature and the Environment 3 Credits

Students examine literature on important environmental issues, such as climate change, pollution, dams, oil pipelines, and nuclear energy. The class focuses on how literature, which may include fiction, poetry, drama, and essays, helps readers understand and grapple with these complex global challenges.

ENG 318 Food Writing 3 Credits

Food Writing is a thematically based course in essay writing. It develops students' ability to write effective informal prose while also extending their knowledge about food sources, preparation, and consumption. They learn through readings and exercises, however, that food writing is about more than food. It encompasses the pleasures of the table, history, culture, science, and politics.

Prerequisite(s): completion of composition requirements or permission of instructor.

ENG 322 Grant Proposals, Fundraising and Development 3 Credits

Students employ their analytical and writing skills to research and write grants for non-profit organizations in their local or regional communities. Fundraising and development activities on behalf of area organizations introduce them to career opportunities in this growing field.

Prerequisite(s): CMP 125 or CMP 203 or BHP 150 or permission of instructor.

ENV 200 Statistical and Computer Applications in the Natural Sciences 4 Credits

This course introduces important statistical concepts, their application, and the usage of computer technology relevant to biological, environmental, geological, and marine problems. Students will learn various graphical and statistical techniques and how to execute them on personal computers. The curriculum emphasizes the integrated nature of these techniques and their importance to meaningful data evaluation and representation. Laboratory exercises are designed to emphasize useful solutions to problems found in many scientific disciplines using computer-based methodologies. Three hours of lecture and one three-hour lab per week.

Corequisite(s): ENV 200L.

ENV 205 Introduction to Geographic Information Systems 3 Credits

This course introduces the computer-based concepts and skills of Geographic Information Systems (GIS). It covers the basic GIS concepts, such as map characteristics and projections, spatial data models and analysis, and relational databases. It explores data sources, data quality, and metadata, as well as implementation and management of specific GIS projects. Hands-on experience with ArcGIS software is provided through a series of student exercises completed throughout the semester. Students will also be taught how to process both vector and raster data using ArcGIS software. The course is relevant for students from numerous disciplines in the natural sciences, social sciences, and business, which require the analysis and graphical representation of spatial data. Three hours of lecture per week.

ENV 220 Weather and Climate Change 3 Credits

This course introduces students to the concepts of weather and climate change. These concepts frame a continuum from short-term or daily changes in the atmosphere (meteorology) to those changes averaged over much longer periods of time (climatology). Students will learn the fundamentals of weather forecasting, the causes of natural variation in the Earth's climate, and the impact of human actions on the Earth's climate. Connections will be drawn to other current issues in the Earth system, including land use change, biodiversity, and pollution. Three hours of lecture per week.

Prerequisite(s): GEO 100 or GEO 113 or permission of instructor.

HIS 224 American Environmental History 3 Credits

Surveys the history of the North American environment from pre-Columbian times through the 20th century. Topics include Native American uses of the environment; the reshaping of ecosystems under European colonization; U.S. frontier expansion; the ecological impact of industrialization and urbanization; and the rise of the environmental movement.

POL 215 Global Politics 3 Credits

The struggle for power, wealth, and order at the global level involving nation-states, intergovernmental organizations (such as the United Nations, the European Union, etc.), non-governmental organizations, transnational enterprises and other non-state entities, using military, economic, diplomatic, legal, and communication instruments. Overview of global problems such as the proliferation of weapons of destruction, ethnic and religious conflicts, human rights, and the global environment in the 21st century.

POL 328 Environmental Politics 3 Credits

Environmental Politics examines how policymakers deal with the political challenges of unsustainable resource consumption, which is a primary determinant of environmental problems such as climate change, adverse health effects, and biodiversity loss. The course introduces students to environmental politics and policies at the local, state, national, and international levels. The course is designed to provide students with a framework for understanding how varied interests compete within political institutions in order to transform contending ideas into public policy. With that in mind, students will not only become more informed consumers of political information, but will also become more effective at analyzing and advocating for policies as it relates to the environment.

POL 329 Comparative Environmental Policy 3 Credits

Comparative Environmental Policy analyzes cross-national approaches in developing, implementing, and evaluating policy responses to environmental problems. The course analyzes the political factors, actors, and tools that help and explain why some societies have been more likely to develop effective responses to environmental threats.

POL 330 Geopolitics of Energy 3 Credits

Geopolitics of Energy Security explores the role of energy in shaping global politics, natural resource management practices and volatility in economic markets. The course begins with an overview of energy security and explores issues associated with energy production, national security, energy consumption, and environmental conservation. Throughout the course students will become familiar with basic data, trends, issues and options in the exploration and production of renewable and non-renewable energy sources.

SOC 225 Population Study 3 Credits

Demography; its definition, historical emergence, and growth; population as a social problem in developing and developed nations; population theories, sources and methods of demographic data, population composition, and distribution; demographic processes including fertility, mortality, and migration.

SOC 340 Power and Politics 3 Credits

Examines the nature and distribution of power in contemporary societies; analyzes the relationships between power and politics.

Prerequisite(s): SOC 101.

SOC 350 Social Policy 3 Credits

Investigates the relationship between economic development and social policy in comparative and historical context. The main features of preindustrial, early industrial, and advanced industrial social welfare systems are described. Social, economic and political factors that shape social policy are investigated.

Prerequisites: SOC 101 or SOW 250.