

SUSTAINABLE DEVELOPMENT

Departmental Office: The Earth Institute, Columbia Climate School, Hogan, B-Level; <http://sdev.ei.columbia.edu>

Co-Directors of Undergraduate Studies:

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Sustainable development is founded on the premise that human well-being should advance without irreparable harm to ecosystems and the vital services they provide, without depleting essential resources, and without posing risks to future generations. The term "sustainable" refers to managing the world's economy in a manner consistent with the continued healthy functioning of Earth's ecosystems, oceans, atmosphere and climate. In this context, "development" refers to continued social, political, and economic progress aimed at improving the well-being of the global community, especially for the poorest people.

Academic Programs

The Earth Institute—in collaboration with Columbia College, the School of General Studies, the School of International and Public Affairs, and the Departments of Earth and Environmental Science; Ecology, Evolution, and Environmental Biology; and Earth and Environmental Engineering—offers a major and a special concentration in sustainable development.

These programs are designed to: engage students in this emergent interdisciplinary discussion, provide knowledge of the theory and practice of sustainable development, stimulate a critical examination of historical and conceptual antecedents, provide experience in the complex challenges of sustainable development through direct engagement, and help them imagine alternative futures for our rapidly changing world. With help from the Earth Institute faculty, courses are specifically created to address the very real and complex issues of development as they relate to the interactions of the natural and social systems.

The major focuses heavily on the sciences and provides students with a working knowledge of issues on a range of interacting subject areas. After declaring the major, students are assigned an academic adviser from within the Earth Institute, who advises on class selection and career development. Students benefit from a support system of faculty, advisers, and program managers, and have access to the multitude of resources for internships, study abroad programs, and career development.

The special concentration is intentionally more flexible, but its structure allows students to benefit from the cross-disciplinary courses and to build the expertise to allow them to address the fundamental issue of how to move towards a trajectory of sustainability.

The sustainable development program is structured to ensure that students graduate with the skills and knowledge to enable them to advance professionally in the public, private, governmental, and nonprofit sectors, and to pursue advanced degrees. Those interested in sustainable development are encouraged to participate in lectures, conferences, and other programs sponsored by the Earth Institute.

Grading

A letter grade of C- or better is needed in all program-related courses in order to satisfy the program requirements.

Sustainable Development Faculty

Susana Adamo (Center for International Earth Information Network)

Satyajit Bose (School of International and Public Affairs)

Steve Cohen (The Earth Institute; School of International and Public Affairs)

Lisa Dale (The Earth Institute; Ecology, Evolution, and Environmental Biology)

Ruth DeFries (Ecology, Evolution, and Environmental Biology) (Co-Director)

Paul Gallay (Ecology, Evolution and Environmental Biology)

Francesco Fiondella (International Research Institute for Climate and Society)

Michael Gerrard (Center for Climate Change Law and Columbia Law School)

Adela Gondek (Ecology, Evolution and Environmental Biology)

Radley Horton (Center for Climate Systems Research)

Joyce Klein-Rosenthal (The Earth Institute)

Jacqueline Klopp (The Earth Institute)

Upmanu Lall (Columbia Water Center; International Research Institute for Climate and Society)

Kytt McManus (Center for International Earth Science Information Network)

Rachel Moresky (Population and Family Health)

John Mutter (Earth and Environmental Sciences; School of International and Public Affairs)

Linda Pistolesi (Center for International Earth Science Information Network)

Jason Smerdon (Lamont-Doherty Earth Observatory) (Co-Director)

Martin Stute (Lamont-Doherty Earth Observatory)

Phil Weinberg (Ecology, Evolution and Environmental Biology)

Major in Sustainable Development

The sustainable development foundation courses should be taken first and students should then work with the program adviser on further course selection and sequencing.

The major in sustainable development requires a minimum of 15 courses and a practicum as follows:

Sustainable Development Foundation

SDEV UN1900	INTRO TO SUSTAINABLE DEVPT SEM (Beginning fall 2023, SDEV 1900 Introduction to Sustainable Development is no longer a required course for students in the major and special concentration. See note below.) ¹
SDEV UN2300	CHALLENGES OF SUSTAINABLE DEV
EESC UN2330	SCIENCE FOR SUSTAINABLE DEVPT

Basic Disciplinary Foundation

Select one of the following science sequences. NOTE: Associated labs are required for Physics and Environmental Biology sequence.

CHEM UN1403 - CHEM UN1404	GENERAL CHEMISTRY I-LECTURES and GENERAL CHEMISTRY II-LECTURES
EEEB UN2001 - EEEB UN2002	ENVIRONMENTAL BIOLOGY I and ENVIRONMENTAL BIOLOGY II (EESC UN2310 is a co-requisite with EEEB UN2002)
EESC UN1600 - EESC UN2100	EARTH RESOURCES # SUSTAIN DEV and EARTH'S ENVIRO SYST: CLIM SYST
EESC UN1600 - EESC UN2200	EARTH RESOURCES # SUSTAIN DEV and EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH
EESC UN1600 - EESC UN2300	EARTH RESOURCES # SUSTAIN DEV and EARTH'S ENVIRO SYST: LIFE SYST (EESC UN2310 is co-requisite with EESC UN2300)
EESC UN2100 - EESC UN2200	EARTH'S ENVIRO SYST: CLIM SYST and EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH
EESC UN2100 - EESC UN2300	EARTH'S ENVIRO SYST: CLIM SYST and EARTH'S ENVIRO SYST: LIFE SYST (EESC UN2310 is co-requisite with EESC UN2300)
EESC UN2200 - EESC UN2300	EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH and EARTH'S ENVIRO SYST: LIFE SYST (EESC UN2310 is co-requisite with EESC UN2300)
PHYS UN1201 - PHYS UN1202	GENERAL PHYSICS I and GENERAL PHYSICS II (LABS PHYS 1291 and PHYS 1292 also required)

Select two of the following social science courses:

ANTH UN1002	THE INTERPRETATION OF CULTURE
ANTH UN1003	The Environment
ANTH UN2004	INTRO TO SOC # CULTURAL THEORY
ANTH BC2427	ANTHROPOLOGY OF CLIMATE CHANGE
ECON UN1105	PRINCIPLES OF ECONOMICS
HIST UN2222	NATURE # POWER: ENV HIST NORTH AMERICA
POLS UN1201	INTRO TO AMERICAN POLITICS (Students can take POLS 1201 or SDEV 2050)
POLS UN1501	INTRO TO COMPARATIVE POLITICS (Students can take POLS 1501 OR POLS 1601)
POLS UN1601	INTERNATIONAL POLITICS
SDEV UN2000	INTRO TO ENVIRONMENTAL LAW
SDEV UN2050	ENVIRONMENTAL POLICY AND GOVERNANCE
SDEV UN3400	HUMAN POPULATIONS # SDEV
SOCI UN1000	THE SOCIAL WORLD

Select one of the following quantitative foundations courses:

EEEB UN3005	INTRO-STAT-ECOLOGY # EVOL BIOL
EESC BC3017	ENVIRONMENTAL DATA ANALYSIS
STAT S1101	INTRODUCTION TO STATISTICS (this course is approved as a quantitative foundations course starting Spring 2024)
STAT UN1101	INTRODUCTION TO STATISTICS (this course is approved as a quantitative foundations course starting Spring 2024)
STAT UN1201	CALC-BASED INTRO TO STATISTICS
MATH UN2015	Linear Algebra and Probability (This course is approved as a quantitative foundations course starting Fall 2022. This course replaces MATH UN2010 Linear Algebra as an option for this requirement.)

Analysis and Solutions to Complex Problems

Select two of the following courses:

ANTH BC3932	CLIM CHNG/GLOBAL MIGR/HUM RGT
CIEE E3260	ENGINEERING FOR COMMUNITY DEVELOPMENT
EAEW W4304	Closing the carbon cycle
ECIA W4100	MGMT # DEVPT OF WATER SYSTEMS
EEEB G4135	
EESC BC3032	Agricultural and Urban Land Use: Human- Environment Interactions
EESC GU4600	EARTH RESOURCES # SUSTAIN DEV
HIST UN3712	African Climate and History
HIST GU4811	Encounters with Nature: The History and Politics of Environment, Health and Development in South Asia and Beyond
PUBH UN3100	FUNDAMENTALS OF GLOBAL HEALTH
PUBH GU4200	Environment, Health, and Justice: Concepts and Practice
SDEV UN3330	Ecological and Social Systems for Sustainable Development
SDEV UN3355	CLIMATE CHANGE AND LAW
SDEV UN3360	DISASTERS AND DEVELOPMENT
SDEV UN3366	ENERGY LAW
SDEV UN3410	Cities # Sustainability
URBS UN3565	Cities in Developing Countries: Problems and Prospects
SDEV GU4250	CLIMATE CHANGE: RESILIENCE # ADAPTATION

The Summer Ecosystems Experience for Undergraduates (SEE-U) *

SDEV GU4650	Building Climate Justice: Co-Creative Coastal Resilience Planning
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Skills/Actions

Select two of the following courses:

EAEW E4257	ENVIR DATA ANALYSIS # MODELING
EESC GU4050	GLOBAL ASSMT-REMOTE SENSING
EESC BC3050	BIG DATA WITH PYTHON
SDEV UN2320	ECON # FIN MTHDS FOR SDEV
SDEV UN3390	GIS FOR SUSTAINABLE DEVELOPMNT
SDEV UN3450	SPATIAL ANALYSIS FOR SDEV
SOCI UN3010	METHODS FOR SOCIAL RESEARCH
SUMA PS4100	Sustainability Management
SDEV GU4101	QUAL RESEARCH METHODS SDEV
SDEV GU4240	Science Communication

The Summer Ecosystems Experience for Undergraduates (SEE-U) *

Practicum

Select one of the following courses:

SDEV GU4500	SUSTAINABILITY AND THE MEANING OF PLACE ON CUTTYHUNK ISLAND
SDEV GU4550	The New York City Watershed: From Community Displacement to Collaboration and Climate Adaptation
INAF U4420	Oil, Rights and Development
SDEV UN3998	SUPERVISED INDIVIDUAL RESEARCH
SUMA PS4310	Practicum in Innovation Sustainability Leadership
SUMA PS4734	Earth Institute Practicum

Electives

Select two courses from the following areas. Courses can be combined across Areas 2-5 only. If you select Area 1, you must complete two thesis courses and these will fulfill the elective requirement:

Area 1: Senior Thesis Sequence (EESC BC3800/EESC BC3801 and EESC UN3901) **

Area 2: Upper level courses from the approved electives list (see link in footnotes to access list) ***

Area 3: Additional courses listed under Analysis and Solutions to Complex Problem

Area 4: Additional courses listed under Skills/Actions

Area 5

SDEV UN3310	ETHICS OF SUSTAINABLE DEVPT
SDEV GU4050	US WATER # ENERGY POLICY
SDEV GU4350	PUBLIC LANDS IN THE AMERICAN WEST
SDEV GU4600	SPECIAL TOPICS IN SDEV # CLIMATE

Capstone Workshop

SDEV UN3280	WORKSHOP IN SUSTAINABLE DEVPT
SDEV UN3550	BANGLADSH:LIFE-TECT ACTV DELTA
SDEV GU4400	Sustainable Development in Rwanda

! Beginning fall 2023, SDEV 1900 Introduction to Sustainable Development is no longer a required course for students in the major and special concentration. SDEV 1900 will continue to be offered every year. Please reach out to Sylvia Montijo (smontijo@climate.columbia.edu) with any questions about this change.

* The Summer Ecosystem Experiences for Undergraduates (SEE-U): Please note that students in the major or the special concentration who take SEE-U as a 6-point course can use 3 points towards the Complex Problems requirement and 3 points towards the Skills/Action requirement. If SEE-U is taken for 3 points, it can only count as one Complex Problems class.

**If choosing the senior thesis option to fulfill the elective requirements, students must take both courses in the senior thesis sequence.

***For a full list of previously approved electives, please visit the sustainable development program website: <https://sdev.ei.columbia.edu/content/approved-electives-list>

Not please visit the Sustainable Development website for requirements: Majors: <http://sdev.ei.columbia.edu/curriculum/major/>

Special Concentration in Sustainable Development

In addition to the requirements of the special concentration, students must complete a major or a full concentration.

In addition to the requirements of the special concentration, students must complete a major.

The sustainable development foundation courses should be taken first and students should then work with the program adviser on further course selection and sequencing.

The special concentration in sustainable development requires a minimum of 9 courses and a practicum as follows:

Sustainable Development Foundation

SDEV UN1900	INTRO TO SUSTAINABLE DEVPT SEM (Beginning fall 2023, SDEV 1900 Introduction to Sustainable Development is no longer a required course for students in the major and special concentration. See note below.) [!]
SDEV UN2300	CHALLENGES OF SUSTAINABLE DEV
EESC UN2330	SCIENCE FOR SUSTAINABLE DEVPT

Natural Science Systems

Select one of the following courses. NOTE: Associated labs are required for Physics and Environmental Biology sequence.

CHEM UN1403	GENERAL CHEMISTRY I-LECTURES
EEEB UN1001	Biodiversity
EEEB UN2002	ENVIRONMENTAL BIOLOGY II (EESC UN2310 is co-requisite with EEEB UN2002)
EESC UN1003	Climate and Society: Case Studies
EESC UN1011	Earth: Origin, Evolution, Processes, Future
EESC UN1030	OCEANOGRAPHY
EESC UN1201	Environmental Risks and Disasters
EESC UN1600	EARTH RESOURCES # SUSTAIN DEV
EESC UN2100	EARTH'S ENVIRO SYST: CLIM SYST
EESC UN2200	EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH
EESC UN2300	EARTH'S ENVIRO SYST: LIFE SYST (EESC UN2310 is co-requisite with EESC UN2300)
PHYS UN1201 - PHYS UN1291	GENERAL PHYSICS I and GENERAL PHYSICS I LAB

Human Science Systems

Select one of the following courses:

ANTH UN1002	THE INTERPRETATION OF CULTURE
ANTH UN1003	The Environment
ANTH UN2004	INTRO TO SOC # CULTURAL THEORY
ANTH BC2427	ANTHROPOLOGY OF CLIMATE CHANGE
ECON UN1105	PRINCIPLES OF ECONOMICS
HIST UN2222	NATURE # POWER: ENV HIST NORTH AMERICA
POLS UN1201	INTRO TO AMERICAN POLITICS (Students can take POLS 1201 OR SDEV 2050)
POLS UN1501	INTRO TO COMPARATIVE POLITICS (Students can take POLS 1501 OR POLS 1601)

POLS UN1601	INTERNATIONAL POLITICS
SDEV UN2000	INTRO TO ENVIRONMENTAL LAW
SDEV UN2050	ENVIRONMENTAL POLICY AND GOVERNANCE
SDEV UN3400	HUMAN POPULATIONS # SDEV
SOCI UN1000	THE SOCIAL WORLD
Analysis and Solutions to Complex Problems	
Select two of the following courses:	
ANTH BC3932	CLIM CHNG/GLOBAL MIGR/HUM RGT
CIEE E3260	ENGINEERING FOR COMMUNITY DEVELOPMENT
EAEW W4304	Closing the carbon cycle
ECIA W4100	MGMT # DEVPT OF WATER SYSTEMS
EEEE G4135	
EESC BC3032	Agricultural and Urban Land Use: Human-Environment Interactions
EESC GU4600	EARTH RESOURCES # SUSTAIN DEV
HIST GU4811	Encounters with Nature: The History and Politics of Environment, Health and Development in South Asia and Beyond
PUBH UN3100	FUNDAMENTALS OF GLOBAL HEALTH
PUBH GU4200	Environment, Health, and Justice: Concepts and Practice
SDEV UN3330	Ecological and Social Systems for Sustainable Development
SDEV UN3355	CLIMATE CHANGE AND LAW
SDEV UN3360	DISASTERS AND DEVELOPMENT
SDEV UN3366	ENERGY LAW
SDEV UN3410	Cities # Sustainability
URBS UN3565	Cities in Developing Countries: Problems and Prospects

The Summer Ecosystem Experiences for Undergraduates (SEE-U) *

SDEV GU4650	Building Climate Justice: Co-Creative Coastal Resilience Planning
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Skills/Actions

Select one of the following courses:

EAEW E4257	ENVIR DATA ANALYSIS # MODELING
EESC BC3050	BIG DATA WITH PYTHON
EESC GU4050	GLOBAL ASSMT-REMOTE SENSING
SDEV UN2320	ECON # FIN MTHDS FOR SDEV
SDEV UN3390	GIS FOR SUSTAINABLE DEVELOPMNT
SDEV UN3450	SPATIAL ANALYSIS FOR SDEV
SDEV GU4101	QUAL RESEARCH METHODS SDEV
SDEV GU4240	Science Communication
SUMA PS4100	Sustainability Management
SOCI UN3010	METHODS FOR SOCIAL RESEARCH

The Summer Ecosystem Experiences for Undergraduates (SEE-U) *

Practicum

Select one of the following courses:

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INAF U4420	Oil, Rights and Development
SDEV UN3998	SUPERVISED INDIVIDUAL RESEARCH
SUMA PS4310	Practicum in Innovation Sustainability Leadership
SUMA PS4734	Earth Institute Practicum

Capstone Workshop

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Not a Sustainable Development Website for Special Concentrators: <http://sdev.ei.columbia.edu/curriculum/special-concentration/>

SDEV UN1900 INTRO TO SUSTAINABLE DEVPT SEM. 1.00 Point.

The course is designed to be a free flowing discussion of the principals of sustainable development and the scope of this emerging discipline. This course will also serve to introduce the students to the requirements of the undergraduate program in sustainable development and the content of the required courses in both the special concentration and the major. The focus will be on the breadth of subject matter, the multidisciplinary nature of the scholarship and familiarity with the other key courses in the program. Offered in the Fall and Spring

Term	Section	Call Number	Instructor	Times/Location
Fall 2024	001	11134	Jason Smerdon	T 11:40am - 12:55pm Room TBA

SDEV UN2000 INTRO TO ENVIRONMENTAL LAW. 3.00 Points.

The course provides an overview of environmental law for students without a legal background. It examines U.S. statutes and regulations regarding air, water, hazardous and toxic materials, land use, climate change, endangered species, and the like, as well as international environmental issues. After completing the course students should be equipped to understand how the environmental laws operate, the role of the courts, international treaties and government agencies in implementing environmental protection, and techniques used in addressing these issues

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12602	Philip Weinberg	M W 11:40am - 12:55pm 703 Hamilton Hall

SDEV UN2050 ENVIRONMENTAL POLICY AND GOVERNANCE. 3.00 Points.

Sustainability is a powerful framework for thinking about business, economics, politics and environmental impacts. An overview course, Environmental Policy # Governance will focus specifically on the policy elements of sustainability. With an emphasis on the American political system, the course will begin by exploring the way the American bureaucracy addresses environmental challenges. We will then use the foundations established through our understanding of the US system to study sustainable governance at the international level. With both US and international perspectives in place, we will then address a range of specific sustainability issues including land use, climate change, food and agriculture, air quality, water quality, and energy. Over the course of the semester, we will study current events through the lens of sustainability policy to help illustrate course concepts and theories

SDEV UN2300 CHALLENGES OF SUSTAINABLE DEV. 3.00 Points.

This course provides an introduction to the field of sustainable development, drawing primarily from social science and policy studies. It offers a critical examination of the concept of sustainable development, showing how factors like economics, population, culture, politics and inequality complicate its goals. Students will learn how different social science disciplines (political science, demography, economics, geography, history, law, and sociology) approach challenges of sustainable development across a variety of topics (fisheries, climate change, air pollution, consumption, energy, conservation, and water management). The course provides students with some of the fundamental concepts, vocabulary, and analytical tools to pursue and think critically about sustainable development. Offered in the Spring

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12604	Lisa Dale	T Th 10:10am - 11:25am 142 Uris Hall

SDEV UN2320 ECON # FIN MTHDS FOR SDEV. 3.00 Points.

Prerequisites: Principles of Economics and one semester of calculus. The objective of this course is to introduce students to the skills and methods necessary to understand and evaluate the economic and financial aspects of sustainable development. Throughout the course, students will compare competing objectives and policies through the prism of economic # financial reasoning. Environmental economics and finance are broad areas covering all the multi-faceted and complex interactions between the economic system and the natural environment. Financial markets are the primary source of signals used to direct economic activity in a capitalist global economy. Economic activity is the primary determinant of the quality and sustainability of the natural environment. Students interested in sustainable development who are unfamiliar with economics and who do not develop a facility with economic and financial concepts are severely handicapped in their efforts to increase the level of environmental responsibility embedded in economic activity. This course is intended to provide students with a flying introduction to key analytical concepts required to understand topics in environmental economics and finance and to introduce them to selected topics within the field. The first part of the course (the Analytical Toolbox) is designed to provide a set of portable skills for two sets of students: a) those who will work in fields specifically devoted to sustainable development who, as part of their work, will need to engage with sources of economic # financial information and with discourses where sustainable development is not a focus; and b) students who may end up following careers in organizations where sustainability is not the primary objective. The topics and readings in the second part of the course were chosen to facilitate a critical engagement with the broad intellectual framework underlying sustainable development from the perspective of economics and finance. The topics are intended to create a community of intellectual discourse on sustainable development that will spill over beyond the classroom to the conversations of students and alumni that will far outlive graduation. Offered in the Fall

SDEV UN3280 WORKSHOP IN SUSTAINABLE DEVPT. 4.00 Points.

Open to sustainable development seniors only.

The upper level undergraduate Sustainable Development Workshop will be modeled on client based graduate-level workshops, but with more time devoted to methods of applied policy analysis and issues in Sustainable Development. The heart of the course is the group project on an issue of sustainable development with a faculty advisor providing guidance and ultimately grading student performance. Students would receive instruction on methodology, group work, communication and the context of policy analysis. Much of the reading in the course would be project-specific and identified by the student research teams. Offered in Fall and Spring. For registration issues contact Cari Shimkus (cshimkus@ei.columbia.edu)

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12606	Jenna Lawrence	M W 2:10pm - 4:00pm 606 Lewisohn Hall
Spring 2024	002	12607	Radley Horton	T Th 12:10pm - 2:00pm 301m Fayerweather
Fall 2024	001	11135	Jenna Lawrence	M W 2:10pm - 4:00pm Room TBA
Fall 2024	002	11136	Radley Horton	T Th 12:10pm - 2:00pm Room TBA

SDEV UN3310 ETHICS OF SUSTAINABLE DEVPT. 3.00 Points.

Aiming to improve human conditions within many diverse environments, sustainable development seeks to create, increase and perpetuate benefit and to cease, rectify and reverse harm. Sustainable development is consequently inextricable from the fabric of ethics, woven with determinations of benefit and harm to the existence and well-being of both humans and nonhumans. Underlying such determinations are those of self- and other-regarding motivation and behavior; and underlying these are still others, of sensitivity and rationality in decision-making, whether individual, social or public. Sustainable development is interlaced with and contingent upon all these determinations, at once prescriptive and judgmental, which can be called the ethics of sustainable development. This course is divided into four main sections, of which two are intended to show the ethical fallacies of unsustainable development, and two, the ethical pathways of sustainable development. The first section focuses upon ethically problematic basic assumptions, including human (species) hegemony, happy (hedonic) materialism, and selective (data) denial. The second focuses upon ethically problematic ensuing rationalizations, including those pertaining to damages, victims, consequences and situations of climatic, chemical, biological and ecological harm. The third section responds to these rationalizations with ethically vital considerations of earth justice, environmental justice, culturally-based ethics, and sector-based ethics (water, food, place and climate ethics). Finally, the fourth section responds to the initial, longstanding problematic assumptions with a newly emergent ethical paradigm, comprising biotic wholeness, environmental integrity and the deliberative zero-goal. Tying all sections together is the central theme: to be sustainable, development must be ethical. Reflecting the collaborative quality of the field of sustainable development, the course extends to readings whose authors have all pursued their work at intersections of science and ethics, environment and ethics, policy and ethics, business and ethics, and sustainable development and ethics

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12609	Adela Gondek	T Th 1:10pm - 2:25pm 304 Hamilton Hall

SDEV UN3330 Ecological and Social Systems for Sustainable Development. 3 Points.

Prerequisites: SDEV UN2300 Challenges of Sustainable Development and EESC UN2330 Science for Sustainable Development.

The course focuses on basic principles in understanding ecological and social relationships and then focuses on three current topics central to Sustainable Development for in-depth study. Examples of topics to be covered are: conservation of biodiversity, payments for ecosystem services, and the ecology of food production. The emphasis will be on the multiple perspectives— environmental, social and economic— required to understand and develop solutions to problems in sustainable development. These topics will undoubtedly vary from year to year, as the course keeps pace with current topics.

SDEV UN3355 CLIMATE CHANGE AND LAW. 3.00 Points.

Enrollment limited to 15.

The purpose of this course is to provide students with a broad introduction to the field of climate law in the United States and at the international level. The course begins with an overview of the causes and effects of global climate change and the methods available to control and adapt to it. We then examine the negotiation, implementation and current status of the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Copenhagen Accord. The focus then turns to the past and proposed actions of the U.S. Congress, the executive branch and the courts, as well as regional, state and municipal efforts. The Clean Air Act, the National Environmental Policy Act and the Endangered Species Act will receive special attention. We evaluate the various legal tools that are available to address climate change, including cap-and-trade schemes; carbon taxation; command-and-control regulation; litigation; securities disclosures; and voluntary action. The roles of energy efficiency, renewable energy sources, carbon capture and sequestration, and forestry and agriculture each receive close attention. Implications for international human rights, international trade, environmental justice, and international and intergenerational equity are discussed. The course concludes with examination of the special challenges posed by China; proposals for adaptation and geoengineering; and business opportunities and the role of lawyers. Offered in the Spring

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12610	Michael Gerrard	T Th 1:20pm - 2:40pm 104 Jerome L Greene Hall

SDEV UN3360 DISASTERS AND DEVELOPMENT. 3.00 Points.

Prerequisites: *EESC 2330; SDEV W2300.*

Prerequisites: EESC 2330; SDEV W2300. Human welfare status is very unevenly distributed throughout the globe - some of us live very comfortable lives, others remain in desperate poverty showing little progress away from their condition. Between are countries that are rapidly developing and converging toward the welfare of the richest. At all levels of economic development human activities place significant pressure on the environment and threatens all of Earth's vital functions and support systems for human life. This challenge requires timely responses based on solid understanding of the human/environment interface, technological and economic approaches to mitigate adverse effects on the environment, and routes to understanding the complex dynamics of the coupled human/natural systems that can chart a pathway to improvement in the lives of the poorest and continued well-being for those who have achieved prosperity without forcing natural systems into decline or massive fluctuation. This course offers undergraduate students, for the first time, a comprehensive course on the link between natural disaster events and human development at all levels of welfare. It explores the role that natural disasters might have and have had in modulating development prospects. Any student seriously interested in sustainable development, especially in light of climate change, must study the nature of extreme events - their causes, global distribution and likelihood of future change. This course will cover not only the nature of extreme events, including earthquakes, hurricanes, floods and droughts but also their transformation into disaster through social processes. It will ultimately help students to understand the link between such extreme events, the economic/social shock they represent and development outcomes. The course will combine careful analysis of the natural and social systems dynamics that give rise to disasters and examine through group learning case studies from the many disasters that have occurred in the first decade of the 21st century. Offered in the Spring (odd years only)

Term	Section	Call Number	Instructor	Times/Location
Fall 2024	001	14160	John Mutter, Sonali Deraniyagala	M W 6:10pm - 7:25pm Room TBA

SDEV UN3366 ENERGY LAW. 3.00 Points.

This course concerns the regulation of energy, energy resources, and energy facilities. Among the topics will be the regulation of rates and services; the roles of the Federal Energy Regulatory Commission and the state public utility commissions; and the interaction with environmental law. Attention will be devoted to energy resources (such as oil, natural gas and coal) and to generating, transmission and distribution facilities. The current and future roles of renewable energy, energy efficiency, and nuclear energy will receive special attention, as will the regulation and deregulation of electricity

Term	Section	Call Number	Instructor	Times/Location
Fall 2024	001	11161	Michael Gerrard	W 4:20pm - 6:10pm Room TBA

SDEV UN3390 GIS FOR SUSTAINABLE DEVELOPMNT. 3.00 Points.

This course is designed to provide students with a comprehensive overview of theoretical concepts underlying GIS systems and to give students a strong set of practical skills to use GIS for sustainable development research. Geographic Information Systems (GIS) are a system of computer software, data and analysis methods used to create, store, manage, digital information that allow us to create maps and dynamic models to analyze the physical and social processes of the world. Through a mixture of lectures, readings, focused discussions, and hands-on exercises, students will acquire an understanding of the variety and structure of spatial data and databases, gain knowledge of the principles behind raster and vector based spatial analysis, and learn basic cartographic principles for producing maps that effectively communicate a message. Student will also learn to use newly emerging web based mapping tools such as Google Earth, Google Maps and similar tools to develop on-line interactive maps and graphics. The use of other geospatial technologies such as the Global Positioning System will also be explored in this class. Case studies examined in class will draw examples from a wide ranges of GIS applications developed to assist in the development, implementation and evaluation of sustainable development projects and programs. On completion of the course, students will: 1. use a variety of GIS software programs to create maps and reports; 2. develop a sound knowledge of methods to search, obtain, and evaluate a wide variety of spatial data resources; 3. develop skills needed to determine best practices for managing spatial data resources; 4. use GIS to analyze the economic, social and environmental processes underlying the concept of building a sustainable world; 5. Gain an understanding of the limits of these technologies and make assessments of uncertainty associated with spatial data and spatial analysis models. Offered in the fall and spring

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12611	Linda Pistolesi, Antoinette Wannebo	T 10:10am - 11:25am 252 Engineering Terrace
Spring 2024	001	12611	Linda Pistolesi, Antoinette Wannebo	Th 10:10am - 12:25pm 252 Engineering Terrace
Fall 2024	001	11162	Kytt MacManus	M 10:10am - 11:25am Room TBA
Fall 2024	001	11162	Kytt MacManus	W 10:10am - 12:25pm Room TBA

SDEV UN3400 HUMAN POPULATIONS # SDEV. 3.00 Points.

Population processes and their outcomes in terms of population size and distribution have a fundamental role in sustainable development and also broad policy implications. This course will introduce students to the scientific study of human populations as a contribution toward understanding social structure, relations, and dynamics, as well as society-nature interactions. The aim is to offer a basic introduction to the main theories, concepts, measures, and uses of demography. The course will cover the issues of population size, distribution and composition, and consumption, at different scales from global to regional to local, as well as the implications for population-environment relationships. It will also address the fundamental demographic processes of mortality, fertility and migration, including their trends and transitions. We will consider these topics in the context of economic development, sustainability and cultural change. The course will also include an overview of basic demographic techniques and tools used for identifying, managing, analyzing and interpreting population data, and an introduction to population projections. Lab sessions will supplement readings and lectures by enabling students to explore data sources, calculate rates, and graphically represent demographic data. Offered in the Fall (even years).

SDEV UN3410 Cities # Sustainability. 3.00 Points.

In an increasingly urban world, sustainable development is not possible without achieving sustainability in cities. This course explores the challenges and opportunities of sustainable development policy-making at the urban level through the study of local efforts to address climate change, provide access to clean water, and develop renewable energy resources, among other topics. Students will gain a more detailed understanding of how cities' histories, land use patterns, and economies influence urban resource use, and how cities have attempted to change those impacts. Using case studies of local sustainability initiatives, students examine how a city's governance structure, political dynamics, and administrative capacity affect policy outcomes. Consideration of the equity implications of urban sustainability efforts is integral to the course

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	20543	Deborah Morris	W 6:10pm - 8:00pm 707 Hamilton Hall

SDEV UN3450 SPATIAL ANALYSIS FOR SDEV. 3.00 Points.

Priority given to sustainable development senior and juniors.

This is an intermediate course in spatial modeling developed specifically for students in the Undergraduate Sustainable Development program. This course will provide a foundation for understanding a variety of issues related to spatial analysis and modeling. Students will explore the concepts, tools, and techniques of GIS modeling and review and critique modeling applications used for environmental planning and policy development. The course will also offer students the opportunity to design, build and evaluate their own spatial analysis models. The course will cover both vector and raster based methods of analysis with a strong focus on raster-based modeling. We will draw examples from a wide range of applications in such areas as modeling Land Use and Land Cover for biodiversity and conservation, hydrological modeling, and site suitability modeling. The course will consist of lectures, reading assignments, lab assignments, and a final project

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12612	Kytt MacManus	M 10:10am - 11:25am 327 Uris Hall
Spring 2024	001	12612	Kytt MacManus	W 10:10am - 12:25pm 307 Uris Hall

SDEV UN3550 BANGLADSH:LIFE-TECT ACTV DELTA. 4.00 Points.

Open to sustainable development seniors only.

This course will explore the interaction of riverine processes, water and hydrology, sedimentary processes, tectonics, land subsidence and sea level rise, environmental issues, cultural setting, and sustainable development in the world's largest delta. The course will explore both the hazards and resources for life in this dynamic environment through lectures, a field trip to Bangladesh during Spring Break and guest lecturers in earth and social sciences. During the field trip, we will be joined by Dhaka University professors and students, providing experience in cross-cultural collaboration, as well as translators to interviews and discussions with Bangladeshis. By the end of the course, students will develop a quantitative understanding of the multiple earth sciences issues. It will also provide a perspective on the mixture of competing earth science, social, historical and political issues that must be addressed in order to effectively address environmental issues. Students should acquire an ability to assess competing claims and projections for future environmental change

SDEV UN3998 SUPERVISED INDIVIDUAL RESEARCH. 1.00-3.00 Points.

Sustainable development majors and special concentrators must register for this independent study to use internship hours for the practicum credit. Students must consult with their program adviser and department before registering. Offered fall, spring and summer

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12613	Adela Gondek	
Summer 2024	001	12231	Adela Gondek	
Fall 2024	001	11164	Adela Gondek	

SDEV GU4015 Complexity Science. 3 Points.

The Complexity Course is a survey of techniques, applications, and implications of complexity science and complex systems. This course aims to be both an introduction for students from other fields, and a forum for continued discussion within the complexity community. Topics include systems dynamics, chaos, scaling, fatted distributions, fractals, information theory, emergence, criticality, agentbased models, graph theory, and social networks.

SDEV GU4050 US WATER # ENERGY POLICY. 3.00 Points.

Course Summary: Water, one of humankind's first power sources, remains critically important to the task of maintaining a sustainable energy supply, in the United States and elsewhere. Conversely, the need to provide safe drinking water and keep America's rivers clean cannot be met without access to reliable energy supplies. As the impact of climate disruption and other resource constraints begins to mount, the water/energy nexus is growing increasingly complex and conflict-prone. Essential Connections begins by examining the development of America's water and energy policies over the past century and how such policies helped to shape present-day environmental law and regulation. Our focus then turns to the current state of US water and energy resources and policy, covering issues such as oil and gas exploration, nuclear energy, hydroelectric power and renewables. We also examine questions of inclusion and equity in connection with the ways in which communities allocate their water and energy resources and burdens along racial, ethnic and socioeconomic lines. The third and final section of the course addresses the prospects for establishing water and energy policies that can withstand climate disruption, scarcity and, perhaps most importantly, America's seemingly endless appetite for political dysfunction. By semester's end, students will better understand the state of America's energy and water supply systems and current efforts to cope with depletion, climate change and related threats affecting these critical, highly-interdependent systems. As a final project, students will utilize the knowledge gained during the semester to create specific proposals for preserving and enhancing the sustainability of US water and energy resources

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12614	Paul Gally	M 4:10pm - 6:00pm 333 Uris Hall

SDEV GU4101 QUAL RESEARCH METHODS SDEV. 3.00 Points.

Students of sustainable development are faced with an array of global challenges that warrant scholarly inquiry. Social science questions are particularly well suited for qualitative research. This course will provide an overview of social science research methods, with a focus on building a toolkit for undergraduate students. We begin with an overview of the science of knowing. How do we generate scientific hypotheses in the social sciences, and then how can we find out whether those hypotheses are accurate? An exploration of a range of qualitative research methods will occupy the majority of our class time, including interviewing, case studies, questionnaires, surveys, coding, and participant observation. Toward the end of the course we consider how mixed methods allow for the integration of quantitative tools in the social sciences. Throughout, students will both study and practice these research methods, experimenting to better understand the strengths and challenges associated with each approach. The course will end with poster presentations in which students share their own research and justify the methods they have employed

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	12615	Lisa Dale	M 12:10pm - 2:00pm 477 Alfred Lerner Hall

SDEV GU4250 CLIMATE CHANGE: RESILIENCE # ADAPTATION. 3.00 Points.

This course will offer a focused study of climate change adaptation policy, exploring dimensions of adaptation across sectors and scales. With a thematic focus on pervasive global inequities, students will also consider challenges associated with international development and disaster risk management. An inter-disciplinary framework will enrich the course, and students will learn about perspectives from the natural sciences, law, architecture, anthropology, humanitarian aid, and public policy. The online intensive version of this course will combine synchronous and asynchronous learning: twice weekly live discussion sessions will be matched with assigned readings, recorded lectures and videos

SDEV GU4350 PUBLIC LANDS IN THE AMERICAN WEST. 3.00 Points.

The course fulfills the "complex problems" major requirement for the Undergraduate Program in Sustainable Development (UPSD). The American West is perhaps best known for the dramatic landscapes managed through a web of federal land management agencies. Indeed, western states have a land base that is at least 35% public, and competing interests vie for limited resources and navigate a complex bureaucracy. Less well understood are the dynamics that arise from the interactions among different land ownership categories: federal, state, and private. Working landscapes are essential pieces of the cultural heartbeat of the region. This course will focus on: 1) the history of western settlement, highlighting the ways in which early Westerners divided up the land base and allocated resources; 2) the agencies in charge of managing federal public land including the U.S. Forest Service, U.S. Bureau of Land Management, and U.S. Park Service; and 3) state and private land, with a particular interest in the State Land Board. We will explore the legal and regulatory framework that guides land-use decisions, and study enduring resource access conflicts. Pulling from both academic scholarship and the gray literature in political science, environmental sciences, law, and organizational behavior, this course provides an interdisciplinary overview of governance challenges in the American West. Academic Schedule The course will start on Tuesday, May 31st and meet on Tuesdays/Wednesdays/Thursdays on Zoom (likely from 2-5 pm EST each day). The week of June 12th-19th the course will take place in the field in Colorado. The final week will be on Zoom on Tuesday, Wednesday Thursday, again likely from 2-5 pm EST each day. The course ends on Thursday, June 23rd. Modality The course will be offered in a hybrid format. The first two weeks and final (fourth) week of the class will be held entirely on Zoom. We will meet three times per week (Tues/Wed/Thurs) for three hours each session. Week three of the course (June 12-19) will be held in person in Colorado. There, we have the opportunity to visit a broad spectrum of land use types including federally managed forest and grasslands, protected parks, state land board parcels, and private ranches. Student will have some access to local leaders who will accompany us on various field trips to offer their perspectives. The class will participate in many kinds of field activities including hiking in federally designated Wilderness areas, visiting an oil and gas well on public lands, exploring an area recently burned by wildfire, and meeting with rural ranchers. To enroll in this course, you must apply to the Columbia Summer Field Course: Public Lands in the American West through the Center for Undergraduate Global Engagement (UGE)

SDEV GU4400 Sustainable Development in Rwanda. 4.00 Points.

This travel course will give students the opportunity to explore what sustainable development means in the context of Sub-Saharan Africa. Satisfying the workshop requirement for SDEV majors, the course is organized around two projects that students will tackle in teams. Ahead of traveling to Rwanda, three main activities will structure the course. First, students will learn about colonial history and current sustainable development efforts in Sub-Saharan Africa. Second, they will be organized into teams to pursue preliminary research on one of two projects. Third, they will be paired with an undergraduate student at the University of Rwanda and begin regular correspondence using WhatsApp. The travel week will be held over spring break. We will be based in the capitol city Kigali, with some in-country travel to explore beyond the urban core. Students will work in teams alongside their University of Rwanda peers to advance the goals of their project. When we return to the U.S., the final weeks of the class will be devoted to focused team work, as students complete their projects

SDEV GU4420 Oil, Rights & Development. 1.00 Point.

The Simulation class has as its purpose to familiarize and inform the student participants with the real-life interests, objectives, constraints, working and strategies of the range of stakeholders concerned or engaged with a large natural resource development project (oil) in a developing and civil war torn country. It challenges the students, as members of pre-assigned teams with different goals and objectives, as well as values, to seek ways to reconcile, to the extent possible, through discussion and negotiation the different and even conflicting interests, goals and strategies of the multiple stakeholders. These stakeholders include the governing parties, opposition parties, local and international NGOs, local and international media and think tanks, as well as two oil companies, including one from an authoritarian country, competing for the oil development contract

SDEV GU4500 SUSTAINABILITY AND THE MEANING OF PLACE ON CUTTYHUNK ISLAND. 1.00 Point.

In this class, students will travel to Cuttyhunk Island in Massachusetts to explore issues of history, sustainability, and climate change. It will serve to address the one-credit practicum requirement in the Undergraduate Program in Sustainable Development. The overarching question students will ask is: what does it mean to inhabit a place well? To answer this, students will read a selection of literary, historical, and scientific texts while performing physical labor including meal preparation and oyster cultivation on Cuttyhunk Island and assuming responsibility for their classmate community through self-governance. Taught in collaboration with faculty at the Gull Island Institute, the course enables students to critically investigate multiple ways in which knowledge of place is produced and to explore how such knowledge informs, and ought to inform, practices of sustainable development. In traveling to Cuttyhunk Island, students will take up a standpoint from which to consider their own learning goals and develop approaches to more fruitfully engaging the places of Manhattan Island and the Columbia University campus in the course of their SDEV studies. The class will use the physical setting of islands, and the conjunction of seminar with labor, self-governance, and everyday life, to connect different kinds of knowledge across boundaries of discipline and tradition, thought, and embodied practice. Students will analyze written texts, but they will also be challenged to read and interpret a piece of the landscape, an object, or ecosystem through their immersive experience on Cuttyhunk Island. Readings will investigate the natural and human histories of the Buzzards Bay region, contemporary sustainability efforts on Cuttyhunk, as well as the wider assumptions and categories that shape the ideas of sustainability and habitability: what models of action and agency are entailed in these concepts? What relationships between humans and non-human (beings and environments) do such concepts presuppose? Finally, what skills, structures, and actions are necessary to make places habitable, and inhabit them well?

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	14838	Jason Smerdon	

SDEV GU4550 The New York City Watershed: From Community Displacement to Collaboration and Climate Adaptation. 1.00 Point.

The New York City Watershed: From Community Displacement to Collaboration and Climate Adaptation brings students to the Catskill Mountains in upstate New York to learn first hand from researchers and practitioners who help supply over ten million New Yorkers with safe and abundant drinking water while also working to build social, economic and environmental capital in the towns and villages located in the watershed surrounding the city's reservoirs – all against a backdrop of increasing climate-related disruption. The class will learn how New York City and a coalition of upstate watershed communities worked to end nearly a century of mutual resentment, displacement and extraction by entering into the Watershed Agreement of 1997, which has become a widely renowned model for collaborative and equitable water resources management planning in the twenty-five years since its completion. Students will engage with several of the Watershed Agreement's original negotiators and with the local elected officials, agency staff and non-profit leaders who implement its signature "multi-barrier" strategy for drinking water protection through open space preservation, support for sustainable farming practices and investments in clean water infrastructure and sustainable economic growth in watershed communities. They will also learn how increases in storm intensity and warming driven by climate change threaten to upset the delicate balance between New York City's need for safe drinking water and the socio-economic interests of upstate watershed communities. Upon completion of the course, students will better understand the challenges involved in creating and implementing collaborative, multi-stakeholder plans for water resource management and host community benefits in today's increasingly climate-disrupted world

Term	Section	Call Number	Instructor	Times/Location
Fall 2024	001	11165	Ruth DeFries	

SDEV GU4600 SPECIAL TOPICS IN SDEV # CLIMATE. 3.00 Points.

A novel course on the history of understanding of global climate crisis during the Cold War period and a role of science in the agenda of global climate change aims to demonstrate the connections of present state of knowledge and policy with the trajectory of the past. How much this past (s) could and should be useful is the focus of the discussions in the class. The discussions are based on historical narratives, including the history of institutional landscape of science, impacts of individual scientists, imaginaries of the future in the past. All narratives are imbedded in a larger socio-economic and political context. The unique dimension of the course is the inclusion of Soviet climate science which is considered as a global force with a significant knowledge circulations and participation in international organizations. The course is useful for climate students as well as for history and political science students

SDEV GU4650 Building Climate Justice: Co-Creative Coastal Resilience Planning. 3.00 Points.

This course will educate students and support effective coastal resilience planning and climate justice through social and data science learning and data acquisition and analysis, making use of emerging technologies and best practices for collaboration with environmental and climate justice practitioners. Instruction is provided in two areas: i. Climate adaptation planning # climate justice; and, ii. Data science: acquisition, analysis and visualization. Students and instructors will work with participating community-based climate and environmental justice organizations to collect and analyze biological, geographic and socio-economic data relevant to local resilience needs. Once this data has been acquired or generated and quality-assured, the students and community partner organizations will prepare it for presentation to federal, state and local planning officials, to help ensure that the resilience goals and related concerns identified by our community partners will be fully reflected in future planning by those officials. Upon completion of the course, students will better understand the challenges involved in creating and implementing collaborative, data-informed, multi-stakeholder plans for coastal resilience and ecosystem restoration in today's increasingly climate-disrupted world. Successful completion of this course will partially fulfill the Analysis and Solutions to Complex Problems coursework requirement within the Undergraduate Major in Sustainable Development

Term	Section	Call Number	Instructor	Times/Location
Fall 2024	001	11167	Paul Gallay, Gregory Yetman	W 2:10pm - 4:00pm Room TBA
Fall 2024	001	11167	Paul Gallay, Gregory Yetman	M 4:10pm - 5:25pm Room TBA

SDEV GU4670 ENVIRONMENTAL JUSTICE: A LEGAL FRAMEWORK FOR ADVOCACY. 3.00 Points.

The primary goals of environmental justice advocacy are to ensure the equitable treatment and meaningful participation of historically impacted communities in environmental and climate related matters. The movement is deeply rooted in civil rights, human rights, and environmental law. In this course, we will explore the legal framework that advances environmental justice on the local, state, and federal levels. Our course will also explore the interdependent relationship between environmental justice and sustainability. Students will take a hands-on approach to environmental justice and will develop key advocacy skills that practitioners use for the communities that they serve. This course will engage students in a critical analysis of existing environmental justice issues to develop a holistic approach for more effective advocacy

Term	Section	Call Number	Instructor	Times/Location
Spring 2024	001	15348	Christine Appah-Gyamfi	F 12:00pm - 2:00pm 302 Hamilton Hall

Of Related Interest

Analysis of Climate and Earth Systems

EESC BC3017	ENVIRONMENTAL DATA ANALYSIS
EESC GU4008	Introduction to Atmospheric Science
EESC GU4917	THE EARTH/HUMAN INTERACTIONS
EESC GR6901	Research Computing for the Earth Sciences

Disasters and Health

ANTH V3924	Anthropology and Disaster
ANTH V3971	Culture and Environmental Behavior
INAF U6760	Managing Risk in Natural and Other Disasters

Economics

ECON UN2257	THE GLOBAL ECONOMY
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ECON BC3029	EMPIRICAL APPROACHES DEVLPMNT
ECON UN3211	INTERMEDIATE MICROECONOMICS
ECON UN3213	INTERMEDIATE MACROECONOMICS
ECON GU4301	ECONOMIC GROWTH # DEVELOPMNT I
ECON GU4370	POLITICAL ECONOMY
ECON GU4500	INTERNATIONAL TRADE
ECON G4527	Economic Organization and Development of China
ECON W4625	Economics of the Environment
SUMA PS4190	ECONOMICS OF SUSTAINABILITY MANAGEMENT

Energy and Engineering

ANTH V3872	From Physics Labs to Oil Futures: Social Studies of Energy
INAF U6242	Energy Policy
INAF U8778	Distributed Energy Economics, Technology, and Policy
EAAE E3103	ENERGY,MINERALS,MATERIALS SYST
CIEE E4252	
EAAE E4001	INDUST ECOLOGY-EARTH RESOURCES
EAAE E3900	UNDERGRAD RES-ENVIRONMTL ENGIN

Food, Health and Ecology

EEEB UN3087	CONSERVATION BIOLOGY
EEEB W4122	Fundamentals of Ecology and Evolution
EEEB GU4260	FOOD, ECOLOGY # GLOBALIZATION
HSPB W3950	Social History of American Public Health
PUBH GU4200	Environment, Health, and Justice: Concepts and Practice
SOCI V2230	Food and the Social Order
SUMA PS4235	The Science of Urban Ecology
SUMA PS 5030	Hungry City Workshop

Law, Policy and Human Rights

EEEB GU4321	HUM NATURE:DNA,RACE # IDENTITY
EEEB GU4700	RACE:TANGLED HIST-BIOL CONCEPT
ENVP U6236	Origins of Environmental Law: Regulation & Evolution
HIST W4400	Americans and the Natural World, 1800 to the Present
HRTS UN3001	INTRODUCTION TO HUMAN RIGHTS
HRTS BC3850	HUMAN RIGHTS # PUBLIC HEALTH
POLS BC3805	*Colloquium on International Organization
INAF U4545	Contemporary Diplomacy
INAF U6243	International Environmental Policy
JWST G4610	Environment and Sustainability in Israel à €“ Between the Local and the Regional
SCNC W3010	Science, technology and society
SDEV UN3310	ETHICS OF SUSTAINABLE DEVPT
SDEV GU4350	PUBLIC LANDS IN THE AMERICAN WEST
SOCI UN3020	Social Statistics
SOCI UN3235	SOCIAL MOVEMENTS
SOCI UN3324	Global Urbanism
SOCI UN3960	SEMINAR - PROBLEMS OF LAW # SOCIETY
POLS V3212	Environmental Politics
REGN U6639	Gender and Development in Southeast Asia
POLS UN3604	War, Peace, and International Interventions in Africa

POLS UN3690	International Law
CGTH UN3402	YOUTH-INTERCONNECTED WRLD

Urban Studies/Urbanization

URBS V3200	Spatial Analysis: GIS Methods and Urban Case Studies
URBS UN3565	Cities in Developing Countries: Problems and Prospects
PLAN A4579	Introduction to Environmental Planning
SUMA PS4130	Sustainable Cities
SUMA PS4330	Disaster Risk Management and Sustainable Urban Resilience
SUMA PS4490	Women in Cities: Integrating Needs, Rights, Access and Opportunity into Sustainable Urban Design, Planning and Management

Waste Management and Pollution

EAAE E4009	GIS-RES,ENVIR,INFRASTRUCTR MGT
EAAE E4150	AIR POLLUTION PREVENTION/CONTR
EAAE E4160	SOLID # HAZARDOUS WASTE MGMT
EAAE E4257	ENVIR DATA ANALYSIS # MODELING
EESC BC3033	Waste Management
CIEE E3255	

Water

EAAE E4350	PLANNG/MGT-URBAN HYDROLGC SYST
EEEB W4110	Coastal and Estuarine Ecology
EEEB GU4195	MARINE CONSERVATION ECOLOGY
ECIA W4100	MGMT # DEVPT OF WATER SYSTEMS
CIEE E3250	
CIEE E4163	
SDEV GU4050	US WATER # ENERGY POLICY
SUMA PS4145	Science of Sustainable Water