



UNDERGRADUATE PROGRAM IN

Sustainable Development



COLUMBIA COLLEGE
COLUMBIA UNIVERSITY *in the CITY of NEW YORK*



COLUMBIA | GS
School of General Studies

THE EARTH INSTITUTE
COLUMBIA UNIVERSITY

Defining Sustainable Development

Sustainable development is one of the most pressing challenges facing humanity. As the world's population grows, we must develop new ways to meet our requirements for food, energy, water and other basic needs without undermining the planet's natural systems. This challenge touches on a variety of issues, such as poverty alleviation, climate change, and food security, which are so intertwined that none can be viewed apart from the others.

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.



Achieving sustainable development requires systemic and integrated approaches that consider the complex interactions between the planet's natural and social systems, while working at multiple levels of society, from the local to the global.

Columbia University has long worked at the forefront of sustainable development issues through its research centers and graduate programs. More recently, the University began incorporating this work into its undergraduate degree programs. The Earth Institute — in collaboration with Columbia College; the School of General Studies; the School of International and Public Affairs; the Department of Earth and Environmental Sciences; the Department of Ecology, Evolution and Environmental Biology; and the Department of Earth and Environmental Engineering — offers a major and a special concentration in sustainable development for students interested in studying the complex issues of development as they relate to the interactions between natural and social systems.

In 2007, the Earth Institute helped to create the special concentration in sustainable development for undergraduate students. The concentration was designed as a cluster of specialized courses that complemented the expert training in existing disciplinary majors at Columbia. The energy and interest that the special concentration generated from faculty and students foretold the need for a full major in sustainable development, which was launched in the fall of 2010.

The program provides a unique experience, comprising classes specifically designed for sustainable development students and developed by experienced faculty and practitioners. The program provides students with a well-rounded, interdisciplinary education that is geared to the real and complex challenges of sustainable development and our emerging understanding of how to address them. Students will explore how to move toward a trajectory of sustainability that will allow future generations to pursue further progress in human well-being without causing irreparable harm to the planet. Study abroad and internships are strongly encouraged, particularly as a basis for thesis research and to provide students with practical experience early in their professional development.

The Curriculum

Students will take courses within the following framework for both the major and special concentration:

I. Sustainable Development Foundation

Three courses provide students with an understanding of the complex scientific, social and economic issues that underlie sustainable development.

II. Basic Disciplinary Foundation/ Natural Science/ Human Science

Core courses in basic disciplines require students to develop a deeper knowledge of the natural and social sciences that are important to sustainable development. The natural science courses cultivate knowledge in physics, chemistry, biology and/or environmental science, allowing students to be scientifically literate in several core disciplines. Social science courses complement disciplinary foundations, allowing the students to develop an understanding of economic, political and demographic topics in sustainable development.

III. Analysis and Solutions to Complex Problems

Coursework in Water, Energy, Food, Public Health, Climate Change, Natural Disasters and Urbanization allow students to develop an expertise in critical thematic areas of sustainable development.

IV. Skills/Actions

These courses equip students with theoretical foundations and practical skills (such as GIS, statistics and social science survey methods) that are in demand in the public, private and nonprofit sectors, as well as in graduate education programs.

V. Electives/Practicum

Elective courses allow students to take additional courses in the framework of Analysis and Solutions to Complex Problems, and Skills/Actions, or to participate in the Senior Thesis Seminar. The Practicum is a unique class that exposes students to the renowned research conducted at the Earth Institute, and helps them understand its application to sustainability issues.

VI. Capstone Workshop

The capstone experience provides students with the opportunity to apply concepts learned in the classroom to real life. Students meet with practitioners and work as consultants with real-world clients in need of sustainable solutions for specific problems.

The Major

One of the first programs of its kind in the United States, Columbia University's undergraduate major in sustainable development is founded on the belief that students must be trained in a variety of disciplines in order to be effective leaders in the field of sustainable development. The interdisciplinary major extends from the philosophical, ideological, and structural traditions of the Columbia Core and addresses sustainable development through the lens of interacting natural and social systems. Students learn, for example, how to navigate complex public health and urbanization issues, or how to apply analytical skills to develop improved water management strategies. Through these experiences with applied problems and solutions, students take their first step toward addressing the broader challenges of sustainable development currently faced by our global community.

MAJOR CURRICULUM

A minimum of 15 courses and a practicum are required, for a total of approximately 47 points to complete the major. Students who wish to complete the major will work with their program adviser to select and sequence courses, but the general framework will be structured as follows:

I. Sustainable Development Foundation (3 courses)

II. Basic Disciplinary Foundation (5 courses)

III. Analysis and Solutions to Complex Problems (2 courses)

IV. Skills/Actions (2 courses)

V. Electives/Practicum (1 practicum and 2 elective courses)

VI. Capstone Workshop (1 course)

TOTAL POINTS ~ 47

The Special Concentration

The special concentration in sustainable development is not a stand-alone concentration; it is intended to serve as a complement to the disciplinary specialization and methodological training inherent in a concentration or major. In order to graduate, a student must complete a concentration or major in addition to the special concentration.

SPECIAL CONCENTRATION CURRICULUM

A minimum of nine courses and a practicum are required, for a total of approximately 28 points to complete the special concentration. Students who wish to complete the special concentration will work with their program adviser to select and sequence courses, but the general framework will be structured as follows:

I. Sustainable Development Foundation (3 courses)

II. Natural Science Systems (1 course)

III. Human Science Systems (1 course)

IV. Analysis and Solutions to Complex Problems (2 courses)

V. Skills/Actions (1 course)

VI. Practicum (1 practicum course)

VII. Capstone Workshop (1 course)

TOTAL POINTS ~ 28

PLEASE NOTE: For a complete list of courses offered by semester, please visit www.earth.columbia.edu/susdevundergrad.

The Capstone Workshop

Through this workshop, using the combined skills gained in their classrooms, students have the opportunity to work with real-world clients and craft practical solutions to critical problems. They are required to take this course in their senior year. Recent projects have involved working with the Natural Resources Defense Council to collect data on rainfall runoff and identify ways in which property owners could decrease the volume of untreated water entering rivers; creating course curriculum on climate change for the NYC Urban Park Rangers to promote the Natural Classroom program; and helping the Population Council to research the impact of flooding on women in Bangladesh.

Our Faculty

Courses are taught by an expert faculty, including world-class researchers in the fields of Earth science, engineering, and environmental management, and renowned practitioners in fields ranging from environmental law to alternative energy financing. For a list of faculty teaching in the program, please visit our website.

Our Alumni

Graduates of the program go on to work in public, private, and non-profit organizations, and many pursue graduate studies. Program graduates have been employed by organizations such as the Natural Resources Defense Council, Boston Consulting Group, Booz & Company, Earthjustice; Clinton Global Initiative, USAID, ICF International, Unilever; and Teach For America. Former students are also pursuing higher degrees in sustainable development, environmental law and public policy.



Our Students

Students in the program complement the major or special concentration with studies in other departments, ranging from economics to chemistry. They come from diverse backgrounds, bringing an array of perspectives on sustainability topics into the program and building upon the knowledge learned in the classroom through internships, field research, and cocurricular activities. Many students are also involved in efforts dedicated to creating a more sustainable campus, city, and world. Students are active in groups such as NOM³, a student-run sustainable foods nonprofit catering company, serving Columbia University and the Upper West Side; Columbia Eco Reps, a group of student employees that collaborate with Columbia's Office of Housing and Dining and the Office of Environmental Stewardship to provide peer-to-peer student resources for making the campus more environmentally sustainable; and *Consilience*, a global online publication dedicated to promoting an interdisciplinary dialogue on sustainable development. The Student Union for Sustainable Development (SUS-D) collaborates with the program to strengthen student advocacy in campus administration. To learn more about students in the program, please visit our website.

The Community

As one of the few undergraduate programs offered in sustainable development, the Columbia program is notable for its strong connections to the Earth Institute and key leaders in the field, such as Jeffrey D. Sachs, director of the Earth Institute. Students take full advantage of these opportunities by attending lectures and career panels, becoming active in student organizations, and pursuing internship opportunities. An undergraduate lecture series and fieldtrips allow students to learn about current issues in sustainability from practitioners. Fieldwork is an integral part of the academic experience and funding is provided for students to undertake fieldwork off campus through the Global Fellows in Sustainable Development Program. Students are also able to participate in the Global Honors College, an international academic exchange program. The Summer Ecosystems Experience for Undergraduates (SEE-U) program provides students with the opportunity to conduct fieldwork in unique natural settings and to participate in a combination of classroom lectures and lab work. Students can apply this field/coursework in ecology and environmental sustainability for credit in the program.

Through the Global Fellows in Sustainable Development Program, funding is provided for students to undertake fieldwork related to independent research or a senior thesis.

To Declare

Columbia College students who would like to declare the major or special concentration in sustainable development may do so by submitting a declaration form in person during the spring semester of their sophomore year. General Studies students may also declare their major or special concentration in the spring semester using the online declaration system. If you have any questions prior to making your declaration, please feel free to contact the program in order to schedule a meeting.

To Learn More

For more information on the major or the special concentration in sustainable development, please visit

earth.columbia.edu/susdevundergrad

for the following forms and information:

- Sample Course Schedules
- Opportunities for Students Outside the Classroom
- Information on How to Study Abroad
- Declaration Forms
- Course Planning Form
- Course Approval Form
- Internship Substitution Form



Professor Stuart Gaffin, who teaches the Workshop in Sustainable Development, making the case for the widespread use of green roofs, like the one on the top of a Columbia building at 116th Street and Amsterdam Avenue.

PROGRAM CONTACT

Program Directors

Ruth DeFries

Professor, Denning Family Professor of Sustainable Development
Department of Ecology, Evolution and Environmental Biology

Jason Smerdon

Lamont Associate Research Professor
Lamont-Doherty Earth Observatory of Columbia University

Kevin Griffin

Professor, Earth and Environmental Sciences and of Ecology,
Evolution and Environmental Biology

Natalie Unwin-Kuruner

Associate Director of Education
The Earth Institute, Columbia University
212-854-8536
natalie@ei.columbia.edu

Undergraduate Admissions

Columbia College

212 Hamilton Hall
212-854-2522
ugrad-ask@columbia.edu

General Studies

408 Lewisohn Hall
212-854-2772
gs-admit@columbia.edu

earth.columbia.edu/susdevundergrad

