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)
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 (he 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)
Dara Mendeloff (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)
Robert Pollack (Biological Sciences)
Elliott Sclar (The Earth Institute; Architecture, Planning, and Preservation; School of International and Public Affairs)
Jason Smerdon (Lamont-Doherty Earth Observatory) (Co-Director)
Marni Sommer (Mailman School of Public Health)
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
- SDEV UN2300
- EESC UN2330

### Basic Disciplinary Foundation
Select one of the following science sequences. NOTE--Associated labs are also required:
- CHEM UN1403 and CHEM UN1404
- EEEB UN2001 and EEEB UN2002
- EESC UN1600 and EESC UN2100
- EESC UN1600 and EESC UN2200
- EESC UN1600 and EESC UN2300
- EESC UN2100 and EESC UN2200
- EESC UN2100 and EESC UN2300
- EESC UN2200 and EESC UN2300
- PHYS UN1201 and PHYS UN1202
- PHYS UN1291
- PHYS UN1292

Select two of the following social science courses:
- ANTH UN1002
- ANTH UN2004
- ECON UN1105
- POLS UN1501
- POLS UN1601
- SDEV UN2000
- SDEV UN2050
- SDEV UN3400
- SOCI UN1000

Select one of the following quantitative foundations courses:
- EEEB UN3005
- EESC BC3017
- MATH UN2010
- STAT UN1201
- STAT UN2103
- STAT UN3105
- STAT UN3106
- STAT GU4203
- STAT GU4204
- STAT GU4205
- STAT GU4207

### Analysis and Solutions to Complex Problems
Select two of the following courses:
- CIEE E3260
- EAAE W4304
- ECIA W4100
- EESC BC3032
- EESC BC3045
- EESC GU4600
- PLAN A4579
- PUBH UN3100
- SDEV UN3330
- SDEV UN3355
- SDEV UN3360
- SDEV UN3366
- SDEV UN3410
- SOCI BC3932
- URBS UN3565
- SDEV GU4250

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

### Skills/Actions
Select two of the following courses:
- EAAE E4257
- EESC GU4050
- EESC BC3050
- SDEV UN2320
- SDEV UN3390
- SDEV UN3450
- SDEV GU4015
- SOCI UN3010
- SUMA PS4100
- SDEV GU4101

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

### Practicum
Select one of the following courses:
- INAF U4420
- SDEV UN3998
- SUMA PS4310
- SUMA PS4734

### 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
- SDEV GU4050
- SDEV GU4350

### Capstone Workshop
- SDEV UN3280

* 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: http://sdev.ei.columbia.edu/curriculum/major/.

Note: 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.

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
- SDEV UN2300
- EESC UN2330

### Natural Science Systems
Select one of the following courses. NOTE—Associated Labs are also required:
- CHEM UN1403
- EEEB UN1001
- EEEB UN2002
- EESC UN1003
- EESC UN1011
- EESC UN1201
- EESC UN1600
- EESC UN2100
- EESC UN2200
- EESC UN2300
- PHYS UN1201
- PHYS UN1291

### Human Science Systems
Select one of the following courses:
- ANTH UN1002
- ANTH UN2004
- ECON UN1105
- POLS UN1501
- POLS UN1601
- SDEV UN2000
- SDEV UN2050
- SDEV UN3400
- SOCI UN1000

### Analysis and Solutions to Complex Problems
Select two of the following courses:
- CIEE E3260
- EAAE W4304
- ECIA W4100

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

### Skills/Actions
Select one of the following courses:
- EAEE E4257
- EESC BC3050
- EESC GU4050
- SCNC W3010
- SDEV UN2320
- SDEV UN3390
- SDEV UN3450
- SDEV GU4015
- SDEV GU4101
- SUMA PS4100
- SOCI UN3010

### Practicum
Select one of the following courses:
- INAF U4420
- SDEV UN3998
- SUMA PS4310
- SUMA PS4734

### Capstone Workshop
- SDEV UN3280

* 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.

Note: Sustainable Development Website for Special Concentrators: http://sdev.ei.columbia.edu/curriculum/special-concentration/

## Of Related Interest

### Analysis of Climate and Earth Systems
- EESC BC3017
- EESC GU4098
- EESC GU4917
- EESC GR6901

### Disasters and Health
- ANTH V3924
- ANTH V3971
- INAF U6760

### Economics
- ECON UN2257
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