THE WORLD'S TOP SUSTAINABILITY PROGRAMS

Master of Science in Sustainability Science

Master of Science in **Sustainability Management**

Certification of Professional Achievement in **Sustainability Analytics**

Certification of Professional Achievement in **Sustainable Finance**

Certification of Professional Achievement in **Sustainable Water Management**

Columbia University
IN THE CITY OF NEW YORK

Master of Science in Sustainability Science

OVERVIEW

Columbia University in the City of New York offers the world's foremost master's degree programs in applied sustainability studies. Bolstered by the leading-edge research of Columbia's Earth Institute and its Lamont-Doherty Earth Observatory, the Master of Science in Sustainability Science offers students a world-class education, based on a practical, hands-on curriculum, which will allow them to advance in their professional careers and become leaders in their fields.

The program is designed for those who wish to pursue a career in technical aspects of sustainability, helping organizations better understand, predict, and address environmental impacts. Ideal candidates have an undergraduate degree in science, engineering, math or related fields. Graduates will be technical practitioners who are skilled in the practical application of scientific skills and tools to address sustainability problems. Students who complete this course of study learn how to:

- Use scientific methods to observe and monitor the sustainability of natural systems.
- Analyze and model scientific data related to current and future environmental conditions and their effects on the public.
- Use scientific tools and instruments to detect and respond to disruptive sustainability issues.
- Integrate strategically scientific knowledge in decision-making processes in organizations that frequently face significant political and economic obstacles.
- Improve the ability of decision-makers to employ scientific knowledge to conserve and maintain the earth's natural resources and environmental conditions.

There is a growing demand for sustainability professionals in a range of public and private organizations. Sustainability Science graduates are prepared for management and leadership positions in which they oversee science and other technical staff. Graduates have access to Columbia's unparalleled resources and professional network, along with its global alumni base. New York City serves students as a living laboratory for developments in sustainability practice, and as a source of many employers who hire program graduates. Examples of typical job titles of Sustainability Science graduates may include:

- Director, Division of Environmental Science and Assessment
- Program Manager of Environmental Technologies
- Supervisor, Environmental Monitoring
- Environmental Engineer
- Environmental Compliance Specialist
- Chief Scientist, U.S. Environmental Protection Agency.

The MS in Sustainability Science curriculum is customized for working professionals. Students have the flexibility to choose from a variety of courses to position themselves for professional advancement. The program is offered as both a full- and part-time course of study. Courses are held primarily in the evenings, and the degree can be completed without daytime courses. The program is structured to enable part-time students to maintain full-time employment while pursuing their degree requirements.

Our Faculty

The faculty are primarily scientists at the Earth Institute's Lamont-Doherty Earth Observatory – the world's leader in the Earth sciences. Lamont Research Professor Arthur Lerner-Lam, serves as Program Director for Sustainability Science, and the Deputy Director of Lamont. He is joined on the faculty by some of the world's leading experts in the monitoring, analysis, and remediation of environmental impacts. From global climate change to earthquakes, volcanoes, non-renewable resources, environmental hazards and beyond, the program's faculty work with students on the fundamental challenge of sustainability science- to provide a rational basis for the difficult choices faced by humankind in the stewardship of this fragile planet.

Our Students

Our students build on their backgrounds in science, math, and engineering, and related fields to advance sustainability in their respective professions. They are working professionals, who enroll in the program on a part-time basis, or more recent college graduates who study on a full-time basis. Students' work experience includes environment health and safety, energy and utilities, engineering, manufacturing, regulatory compliance, and sustainability consulting.

Columbia University's Earth Institute blends research in the physical and social sciences, education, and practical solutions to help guide the world onto a path toward sustainability. The people who make up the Earth Institute are earth scientists, economists, business and policy experts, specialists in public health and law, researchers, teachers and students.

The School of Professional Studies offers innovative and rigorous programs that focus on the principles of cross-disciplinary knowledge, lifelong learning and an agile response to a changing environment. Its programs combine theory with practice, leverage the expertise of students and faculty, and connect global constituencies.

The Curriculum

By learning practical scientific methods in observation and analysis, and the use of cutting-edge tools, students are prepared to monitor, analyze, predict, and respond to environmental change. Students must successfully complete 36 points or twelve courses. They can enroll on a full-time or part-time basis. They have the flexibility to choose from courses designed especially for them, as well as from many other courses throughout Columbia University. Courses are categorized into five areas of study:

1. Integrative Courses in Sustainability Science (3 courses)

Courses in this area teach students the scientific underpinnings of the complex interactions between human beings and nature. The courses challenge students to integrate their knowledge of Earth observation, measurement, analysis, and modeling skills, as well as the use of scientific tools, to inform sustainability policy, management, and decision-making.

- Fundamentals in Sustainability Science
- Capstone Workshop in Sustainability Science

2. Methods of Earth Observation and Measurement (3 courses)

This area of study introduces students to basic scientific methods used in observing and monitoring natural systems. Students learn to apply these methods in assessing the condition of natural systems, and in making data-driven conclusions about their sustainability.

- Observing and Understanding Sea Level Change
- Predicting the Effects of Climate Change on Global Forests
- Statistics, Data Analysis and Coding for Sustainability Science
- Environmental Sustainability Indicators: Construction and Use
- Remote Sensing for Aquatic Environments

3. Analysis and Modelling Environmental Conditions and Impacts (3 courses)

Courses in this area train students to analyze and model scientific data to understand current and future environments and their interactions with human systems. By learning analysis and modelling, students are better able to inform sustainability policy, management, and decision-making.

- Climate Science for Decision-Makers: Modeling, Analysis, and Applications
- Geographic Information Systems for Sustainability Science
- Monitoring and Analysis of Marine and Estuary Systems

4. Scientific Tools for Responding to Sustainability Challenges (2 courses)

In this area, students learn how to use scientific tools in order to prevent, detect, respond and adapt to pressing sustainability issues, such as the loss of biodiversity, climate change impacts, soil and water contamination, and threats to populations.

- The Technology of Renewable Energy
- Sustainability in the Face of Natural Disasters
- Air Pollution and Measuring the Environmental Burden of Disease
- Quantifying the Financial Impact of Climate Change: Scientific Tools and Applications
- Carbon Capture Utilization and Storage
- Environmental Investigation and Remediation
- Improving Health through Environmental Measurements in Water and Soil

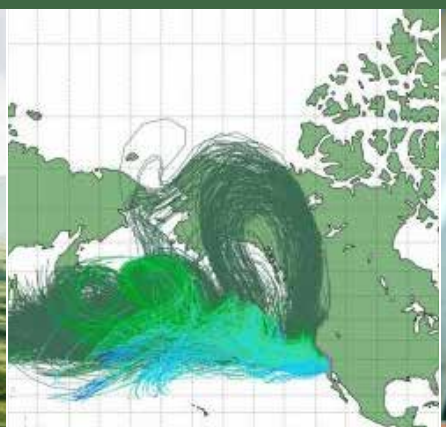
5. Sustainability Policy or Management (1 course)

Courses in this area examine the relationships among sustainability science, policy and management. Students learn about the socio-political and economic contexts in which sustainability science is practiced and the opportunities and obstacles for integrating scientific knowledge in decision-making.

- Sustainability Management
- Managing Diverging Stakeholder Interests in Response to Climate Change

Careers

Helping students and alumni meet their professional goals is a top priority of the program. Both students and alumni have access to a wealth of career resources from Columbia's Earth Institute and the School of Professional Studies. The Earth Institute offers a broad sustainability-specific professional development program, which comprises internships, sustainability skill-building, access to leading practitioners, and specialized job search strategies and tools. The School operates a Career Management program, which offers job search tools and resources.



FAST FACTS

Columbia's Lamont-Doherty Earth Observatory is

RANKED FIRST

worldwide in the Earth Sciences, and is the scientific home to the largest concentration of academic earth and climate scientists in the United States. It was the first to develop a computer model to predict an El Niño weather event, and the first to reveal the ocean's role in triggering abrupt climate change.

Columbia offers more than 200 environmental and sustainability courses each year,

MORE THAN ANY OTHER UNIVERSITY.

Columbia's Earth Institute is

THE LARGEST

university-wide research organization dedicated to the research, practice, and education of sustainability in the world.

The National Research Council ranks the graduate programs in Earth Science at Columbia

NUMBER ONE

in the United States.

Lamont-Doherty administers

THE VETLESEN PRIZE,

"the Nobel Prize in Earth Sciences."

COLUMBIA'S GLOBAL ALUMNI NETWORK

includes over 2,000 graduates associated with the Earth Institute's education programs.

science.ei.columbia.edu

Admissions

Time Commitment

The M.S. in Sustainability Science offers full-time and part-time options for those with current professional obligations, along with flexible course options, which can be tailored to students' specific career goals. Courses are held primarily in the evenings, and the degree can be completed without daytime courses.

Who Should Apply

We welcome applications from professionals with backgrounds in engineering, math, science, or related fields, who want to enter the sustainability field, or who already have some sustainability function in their current positions. Admission to the program is selective. College-level engineering, math, or science are preferred. Practitioner experience is greatly valued, and accomplishments in the field of sustainability science are considered.

Application Deadlines

Applications are accepted on a rolling basis. Prospective students are encouraged to apply early.

- Fall Admission: **Final deadline is May 15**
- Spring Admission: **Final deadline is November 1**

How to Apply

For complete information about how to apply to the program, please visit **www.science.ei.columbia.edu**

Application Materials Checklist

Only complete applications are reviewed.

- ☐ Completed application form
- ☐ $95 application fee
- ☐ Transcripts from all postsecondary schools attended
- ☐ Professional résumé
- ☐ Statement of academic purpose addressing: your purpose and interest in pursuing a degree in sustainability management: how the degree program fits into your overall professional growth, focusing in particular on the connection between the program and your academic and/or professional experience
- ☐ Two letters of recommendation written by teachers or professional colleagues who are well positioned to comment on your intellectual strengths and professional promise. Applicants who have received their bachelor's degree within the last five years must submit at least one recommendation from a teacher who can comment on your academic aptitude.

Program Contact

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