

## Summer Ecosystem Experiences for Undergraduates (SEE-U) 2019



### NEW YORK: Agroecosystems, July 1-August 9

- Agroecosystems are the dominant ecosystem on earth today
- Explore local and regional agroecosystems at nearby farms
- Classroom sessions on the Columbia University campus, with field trips in and around New York City

### JORDAN: Marine and Desert Ecosystems July 7-August 5

- Explore the ecology of all of Jordan and observe the flora and fauna of marine, wetland, desert, and forest ecosystems
- Snorkel one of the most pristine coral reefs on Earth



### COSTA RICA: Agroecology and Coffee, May 22-June 25

- Explore sustainable agriculture and agroforestry on the ground in Costa Rica
- Observe land use concepts on coffee plantations in one of the most biodiverse countries in the world

### SEE-U in Brief

- Earn 6 science credits from Columbia in 4 to 6 weeks
- Fulfill Core Curriculum requirements as well as elective requirements for other majors
- Gain field experience, earn science credits, and explore ecosystems
- Apply early to be eligible for fellowship funding of up to \$3,000

*Nonrefundable application fee:* US \$25

*Nonrefundable deposit:* US \$500 (required upon acceptance to SEE-U, credited towards tuition)

*Tuition for 2019:* US \$9,456

*Room and board for 2019:* US \$1,950 (International), US \$850 (NYC, on field trips only)

More information on reverse side. Please visit [eices.columbia.edu/see-u/](https://eices.columbia.edu/see-u/) for detailed information and application instructions. Please email EICES at [eices@columbia.edu](mailto:eices@columbia.edu) with questions.

## SEE-U General Curriculum

Courses in the SEE-U program consist of lectures, labs, and field-based activities. The program is designed to accommodate both science and non-science majors. No prior field experience is required. All courses are taught in English. Course instruction takes place Monday through Friday or Saturday, with both morning and afternoon sessions.

## Program Costs

**Nonrefundable application fee:** US \$25

**Nonrefundable deposit:** US \$500 (required upon acceptance to SEE-U\*)

**Tuition for 2019:** US \$9,456

**Room and board for 2019:**

US \$1,950 (Brazil, Jordan, and Costa Rica)

US \$850 (New York, **covers room and board on field trips only**)

**Airfare is not included;** students are responsible for flights to and from course sites and additional costs (e.g., passport and visa fees, books, supplies). To comply with Columbia University travel policy, all students must maintain health insurance while travelling internationally.

\*The deposit is applied towards course tuition upon successful completion of the SEE-U Program.

## Fellowships and Applying

EICES provides need-based awards in amounts up to US \$3,000 for all courses. To apply for an EICES fellowship, please fill out the fellowship section of the application. Students are encouraged to apply early for fellowship consideration.

**Students in good academic standing at all accredited colleges or universities may apply.**

Applicants must submit:

- Application form (available online)
- Current transcript
- Essay: 500 words describing why you would like to participate in the SEE-U program
- One letter of recommendation from a faculty advisor or instructor (past or present)
- The nonrefundable US \$25 application fee, **payable by credit card, check, or money order to Columbia University**

**Non-Columbia students** are responsible for confirming that credits from SEE-U are transferable and may be applied to their academic programs. If you have questions or if your academic advisor would like to speak with one of our faculty members, please call **(+1 212-854-8179)** or e-mail EICES at [eices@columbia.edu](mailto:eices@columbia.edu).

Applications accepted on a rolling basis. Due to a limited number of spaces, students are encouraged to apply early to secure a spot in the course of their choosing.

# SEE-U NYC

New York City, Hudson and Harlem Valleys, and New Jersey

6 credits, 6 weeks

Summer 2019: July 1—August 9

Instructor: Dr. Amanda Caudill,

Columbia University Adjunct Instructor



Blooming Hill Farm, NY



Rise & Root Farm, NY



BIGReuse, Queens, NY

The SEE-U NYC course provides students an opportunity to examine in-depth agroecosystems. The course makes use of the diverse array of farms and food systems in New York City and its surrounding environs. Lectures introduce students to the foundations of ecosystem ecology and conservation, focusing on agroecosystems such as farms, rooftop operations, pastures, grazing lands, orchards, and plantations.

The course also covers food systems, or “food to fork” pathways. SEE-U NYC couples lectures at Columbia University’s Morningside Campus with field excursions and lab exercises, allowing students to apply ecological concepts to real-world examples of agroecosystems. Field trips are conducted weekly and include visits to urban farms, small rural and peri-urban farms, and local food purveyors and distributors to expose students to the breadth of local and regional agroecosystems and food systems.

## Did you know?



**Two-thirds** of ecosystems in the world have been converted or are managed to provide food, fuel, or fiber



In the United States, **44%** of the land is under cultivation, and yet over **12 million children** suffer from hunger and **1 in 7 households** suffer from food insecurity



By 2050, the world’s population is expected to increase by **2 to 3 billion people**. Thus, there is considerable research and debate on whether we can sustainably feed humanity.



# SEE-U Jordan

Amman, Dana, Wadi Rum,  
Mujib, Madaba, & Ajloun

6 credits, 4 weeks

Summer 2019: July 7—August 5

Instructor: Dr. Jenna Lawrence,  
Columbia University



Dana



Petra



Tala Bay, Aqaba

Through a partnership between EICES and The Columbia Global Centers | Middle East, the SEEU Jordan course provides students with a unique opportunity to study ecosystems, biodiversity, and environmental sustainability in Jordan. Participants in the course learn about marine, desert, and forest ecosystems while traveling the length of the entire country, from Amman in the north to Aqaba in the south.

In Jordan, you will explore pristine coral reefs while snorkeling and study marine ecology at the Royal Diving Club, a haven for international scientists studying sub-tropical ecosystems. These reefs contain over 350 species of bony fish, rays, hard and soft corals, and turtles. Students will also explore deserts in Dana, visit forests in Ajloun, and float in the Dead Sea to develop an in-depth understanding of ecology in Jordan. Extended stays at the Royal Society for the Conservation of Nature's reserves in Dana, the Wadi Mujib canyon, and Ajloun expose students to the country's varied ecosystems and biodiversity. Cultural highlights during the program include a trip to Petra, one of the New Seven Wonders of the World.

Drawing on current issues in Jordanian resource management, the SEE-U Jordan course explores the interface between science and sustainable development. Students will learn about ecology, evolutionary biology, environmental science, taxonomy, and experimental design. Guest lecturers from government ministries and nonprofit organizations provide students with a broad understanding of current issues in sustainable development in Jordan such as freshwater resource management, desertification, biodiversity conservation, and deforestation. The centerpiece of the course is an individual research project through which students learn how to plan, execute, and present on ecological research.

# SEE-U Costa Rica

## Agroforestry and the Ecology of Coffee

6 credits, 5 weeks

Summer 2019: May 22—June 25

Instructor: Dr. Mandi Caudill,

Columbia University Adjunct Instructor



Turrialba



Coffee Plantation



Jicotea

Although about one billion cups of coffee are consumed worldwide daily—most people do not link the dark, velvety liquid in their cup with the abundant plant and animal life found in regions where coffee is grown. The way that coffee farms are managed varies widely— from a monoculture of coffee plants with little to no shade trees intermixed with the crop (“sun coffee”) to farms with many different types of trees and vegetation interspersed between the coffee plants (“shade coffee”). Sun coffee often uses heavy chemical inputs and provides little habitat for wildlife, whereas shade coffee, which mimics natural forests, provides a refuge for wildlife and ecosystem services and requires fewer, if any, agrochemicals. Can coffee farms be managed in a way that protects wildlife habitat and the environment, while at the same time producing a viable, profitable crop for the farmers?

We will examine the complexities of this question through lectures and discussions, speaking with coffee farmers and researchers, and conducting our own field work. This course will explore the ecology of coffee landscapes; assess coffee certifications such as shade grown, organic, Rainforest Alliance, and Smithsonian Bird Friendly; examine socio-economic and environmental issues associated with the coffee industry; and provide insight into the challenges that farmers face and the complexities involved in defining “sustainable” coffee.

**SEE-U Costa Rica has been officially approved by Columbia, but development is still ongoing. If you are interested in the course, please email [eices@columbia.edu](mailto:eices@columbia.edu).**

**The deadline to express your interest in the course is April 12.**