

Training leaders to solve the complex  
environmental problems of the 21<sup>st</sup> century.



Summer field study courses that provide undergraduate students of all majors with a comprehensive understanding of ecology and environmental sustainability.

Live and learn in:

- Sao Paulo, Brazil
- El Yunque National Forest, Puerto Rico
- Punta Cana, Dominican Republic
- Amman, Aqaba and Dana, Jordan

[eices.columbia.edu](http://eices.columbia.edu)

212-854-0149

djb2104@columbia.edu

# SEE-U

SUMMER ECOSYSTEM  
EXPERIENCES FOR  
UNDERGRADUATES



## Program Overview

EICES's Summer Ecosystem Experiences for Undergraduates program exposes you to ecological fieldwork in unique and interesting natural settings.

The SEE-U Program provides undergraduate **students of all majors from accredited colleges or universities** with a global understanding of ecology and environmental sustainability. This rich field experience combines instruction, lab-work, and web-based collaboration.

In the words of one student, "On this program you don't only learn about ecology. You also learn about a new country, about yourself, and you bond with your classmates and instructors in a way that is impossible to do in a formal classroom."

## Coursework

The SEE-U Program consists of introductory ecology and biology courses. Lectures coincide with designated labs and topical discussions for the course, allowing you to apply classroom knowledge to practical field techniques in their chosen location.

You will receive a weekly schedule that includes reading assignments, lectures, lab experiments and fieldwork. Daily activities revolve around a morning lecture and afternoon fieldwork, with six full days of participation a week.

The program is designed for non-science majors and therefore prior experience with knowledge of the topics, techniques, and computer programs used is not required.

Topics covered by the course include: *biomes, biotic processes, abiotic processes, and contemporary issues in environmental conservation and sustainable development.*



## Key Benefits

- ❖ Keen understanding of the scientific method
- ❖ Familiarity with many different ecological field and laboratory techniques
- ❖ Insight into how biomes interact on a global scale
- ❖ Understanding of the role of species diversity in the functioning of an ecosystem and the importance of conserving that diversity
- ❖ Comprehension of the process and maintenance of sustainability and how this relates to human interaction with their environment
- ❖ Living and learning in an unfamiliar culture
- ❖ Collaboration with local organizations and institutions
- ❖ **Earning 6 transferable Columbia credits** (more details to follow)



## Feedback from our Students

The SEE-U program for many students has become the highlight of their college career and serves as the perfect complement to traditional education.

"My summer experience with the SEE-U program gave me an introduction to many basics of ecological field research. I don't know a better way to bring classroom instruction to life than this wonderful program."

- Ellen Creveling

"SEE-U has been perhaps the most amazing and eye-opening experience of my life. No amount of classroom work could have ever compared to the important lessons I learnt about conservational biology by seeing the natural order of life in the rainforest."

- Chaim Lazaros

"SEE-U Brazil was an amazing experience. If you love conservation, you will love this trip. The program is well structured, and the instructors are passionate about teaching and conservation. I gained a great grasp on what it is like to be a scientist and now have a stronger focus on my future goals."

- Matthew Poland

## Field Sites

## Live and learn in one of our beautiful locations:

*Receive 6 credits in 5 weeks*

### **The Atlantic Forest Sao Paulo, Brazil**

The Atlantic Forest is one of the most endangered regions in the world. You will work and live in some of the largest, remaining tracts of this diverse forest. Tropical flora and fauna abound here, including several endangered primates.



### **Punta Cana Dominican Republic**

Our beautiful coastal Caribbean biome will allow you to study a variety of marine and coastal life. The effect of human impact on this fragile biome, a popular tourist destination, will provide you with an excellent learning opportunity.

### **El Yunque National Forest Puerto Rico**

Live in and explore Puerto Rico's treasured Caribbean National Forest, El Yunque; the only tropical forest within the United States Forest System (USFS). El Verde Field Station is one of the foremost sites for the study of tropical forest ecology.



### **Amman, Aqaba**

### **Royal Society for the Conservation of Nature's reserves Jordan**

Travel throughout the country to experience the wide variety of flora and fauna, as well as understanding major environmental issues, in Jordan's diverse marine, freshwater, desert, and forest ecosystems. Visit the Dead Sea, the Red Sea and many other natural attractions in the region.

**SEE-U Brazil**

The SEE-U course in Brazil is hosted by the Instituto de Pesquisas Ecológicas (IPE) at its Center for Conservation Biology. IPE is headquartered at Nazare Paulista in Sao Paulo and is the third largest Non-Governmental Organization in Brazil. The Institute, which began as a project to study the Black Lion Tamarin, today comprises more than sixty professionals working in thirty projects throughout Brazil.



The Institute is located in Brazil's Atlantic Rainforest, a temperate forest that is considered one of the most threatened ecosystems of the planet, and one of Conservation International's 25 Biodiversity Hotspots.



The landscape around the Institute is a mosaic of forest, pasture, eucalyptus plantations, and reservoirs. There's a network of backcountry roads running through valleys and hills, offering excellent routes and views for hikes and mountain bike riding. The reservoir near IPE is also open for swimming and kayaking. Adjacent to IPE is a small organic farm, which is the source for much of the great variety of fresh fruits and vegetables used in meals prepared for the class.

During the SEE-U Program in Brazil you will also travel for one week to the coastal area of Picinguaba, located in Serra do Mar State Park. Here, you will learn about coastal ecosystems such as restinga, mangroves, jatoba, and marine. This week is also capped off with an evening in historic Paraty.



For more information on IPE visit: [www.ipe.org.br](http://www.ipe.org.br)

## Accommodations: Brazil

You will live at the IPE headquarters in Nazare Paulista, Brazil.  
The IPE campus lies within a small surrounding village with many trails that cut through the local forest and pasture.

There are three main buildings on the campus:

### Dormitories

The dormitories are double occupancy and single sex. Four students share a full bathroom, which connects two double rooms. Beautiful sunsets can be seen from the dormitory building, which overlooks the reservoir and courtyard. Clean linens and towels are provided daily and laundry service is provided weekly.



### Kitchen & Sala

All meals, including daily coffee breaks, are served in the kitchen. The sala acts as a secondary classroom and lounge area with wireless internet and television.



### Classroom

All lectures and lab work are carried out in the classroom, which is also outfitted with wireless internet access.



For one week of the course you will travel to Serra do Mar National Park in Picinguaba where you will be housed in single sex dormitories with meals and lectures taking place nearby.

## SEE-U Dominican Republic



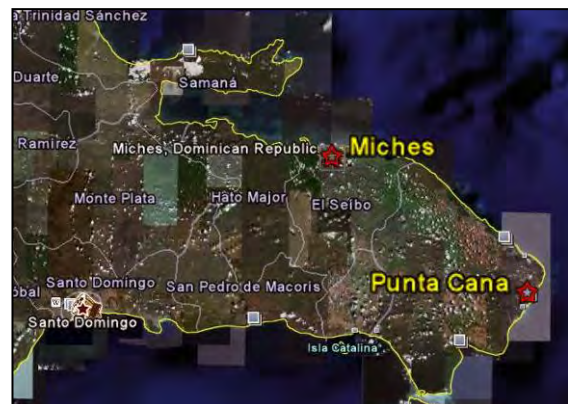
The SEE-U course in the Dominican Republic is hosted by the Fundación Ecológica Punta Cana at the Center for Biodiversity and Sustainability. This Foundation was started by the owners of the Punta Cana Resort and Club and sits on their property.

The Center and Resort are in a rural, coastal setting near the town of Veron, to the south of the city of Higüey in the Altagracia Province of the Dominican Republic.

The landscape around the Center includes the Indigenous Eyes Preserve (Ojos Indígenas) - an area of mostly tropical scrub forest and freshwater lagoons. Additional areas surrounding the Center include former sugar plantations, botanical and agricultural gardens, and backcountry roads. The adjacent coastal area has beaches, seagrass beds, and offshore coral reefs.

The Punta Cana Environmental Foundation's vision is to influence and contribute to the rational use and respect for the natural resources of the Dominican Republic, serving as a model for the development of tourist destinations.

In addition to the time spent at Punta Cana, the group will travel to the town of Miches for several days. Miches is in Samana Bay, about four hours by bus from Punta Cana. Miches offers ecosystems not available in Punta Cana, such as large salt-water and fresh-water lagoons and mangroves.



For more information on the Punta Cana Resort and Club visit:  
<http://www.puntacana.com/>

## Accommodations: Dominican Republic



Students live on-site at the Biodiversity Center, which is located on the grounds of the Punta Cana Hotel and Resort. Accommodations are air-conditioned two-bed dorm rooms, each with a private bathroom. Twelve such rooms occupy the second floor of the new Biodiversity Center building, built in 2000. Laundry and cleaning service are provided.

Half of the upstairs is a common area that includes a large kitchen and an even larger recreation area with tables and a sitting area. Breakfast and lunch are served on this second floor while dinner is served at the employee dining room.



The ground floor of the Punta Cana Biodiversity Center holds the main administrative offices, a reading/conference room, a computer lab with five machines, a classroom, and several biology and chemistry labs. The entire building is air-conditioned except the second-floor common area. The building is next to several botanical and herbal gardens and is monitored 24 hours a day by security services. Wireless access for laptop computers is also available.



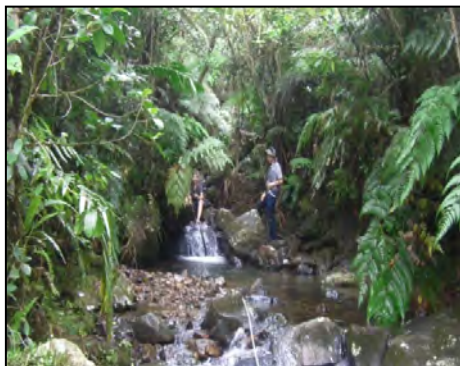
The Station is a ten-minute walk to the resort itself where there is both access to the beach and the nature preserve.

For a week students will stay at a local lodge in Miches where meals are served daily. Each lodge room accommodates two students.

## SEE-U Puerto Rico

The SEE-U Puerto Rico course is based at the El Verde Field Station, a premier research facility operated by the Institute for Tropical Ecosystem Studies at the University of Puerto Rico. Designated a National Science Foundation (NSF) Long-Term Ecological Research Project site (LTER), the station has been the site of continuous ecological research since 1988.

Living and learning inside a tropical rainforest provides students with a total immersion experience into the ecology and dynamics of a fragile and threatened environmental system. The forest surrounding the Station was once the site of coffee plantations, logging and subsistence agriculture and showcases the processes of forest recovery from different land uses following abandonment.



This already mature tropical forest provides a wide diversity of flora and fauna, including species of trees, epiphytes, reptiles, amphibians, birds, aquatic invertebrates and fungi, many of which occur nowhere else in the world. Bordered by streams, swimming holes and waterfalls, the research station sits within a critical and dynamic watershed that provides drinking water to the largest metropolitan area in Puerto Rico.

For one week in the middle of the course, students explore the ecology and biodiversity of coral reefs and mangrove forests. Students participate in snorkeling labs, inventories of marine biodiversity and a boat tour of the surrounding keys with marine biologists at Isla Magueyes, an island off the southwestern coast that is home to the Department of Marine Sciences of the University of Puerto Rico. This field trip gives students a sense of Puerto Rico's regional differences as they leave the wet tropical forests of El Verde for the dry thorn forests of the southern region.



Another trip will take students to visit Las Cabezas, a conservation trust reserve protecting a unique and fragile bioluminescent bay. Students take part in a guided night tour that exposes the incredible diversity and activity of the forest's nocturnal species.



Throughout the course, students interact with full-time and seasonal scientists at the station as they conduct annual inventories of the unique plant and animal communities as part of the LTER's commitment to long-term monitoring. Students from the University of Puerto Rico conducting research at the station's labs and the visiting undergraduates from a wide range of universities and create a social and collaborative environment at the station.



For more information on the El Verde Field Station visit: [ITES](#)

## Accommodations: Puerto Rico

Students live on-site at the El Verde Field Station in recently constructed, suite-style apartments with wireless internet. Each of the four two-bedroom apartments is fully equipped with a large kitchen and dining area, bathrooms in each room, and comfortable seating in a common area. Adjacent to the apartments, coin-operated laundry facilities are available for student use.



The site has a classroom for lectures and seminars, computer room, labs, and a herbarium with reference specimens of local plants. The research station and apartments are equipped with fast wireless internet available 24 hours for student use. Field gear for student projects includes equipment to measure and qualify many aspects of both the aquatic and terrestrial environments.



SEE-U Students and US Forest Ranger Victor Cuevas Padró discussing biodiversity and extinction of species

## SEE-U Jordan



In partnership with the Columbia University Middle East Research Center in Amman, Columbia undergraduate students from have the unique opportunity to study ecosystems and environmental sustainability in Jordan.

To supplement instruction, guest lecturers from Jordanian universities and organizations are incorporated into the curriculum. Focus is placed on understanding Jordan's important environmental issues such as:

- limited natural freshwater resources
- deforestation
- biodiversity conservation
- overgrazing and
- desertification



Ecology and biology coursework are integrated with fieldwork taking place at various sites across the country. You fly into the capital city of Amman, for introductory course lectures over several days. You then travel south to the coastal region of Aqaba to study coral reef and marine ecology at the Red Sea Marine Science Center. Extended

stays at the Royal Society for the Conservation of Nature's reserves in the desert region of Dana, the Wadi Mujib canyon (part of the lowest nature reserve in the world, bordering the Dead Sea), and the northern forest region of Aljoun will provide a comprehensive look at the country's biodiversity, as you work alongside Jordanian scientists.

*Enrollment at this field site is limited to 15 undergraduates from Columbia College, General Studies, and Barnard College. Selected students will be subject to a competitive, intensive review process, including an interview with staff members.*

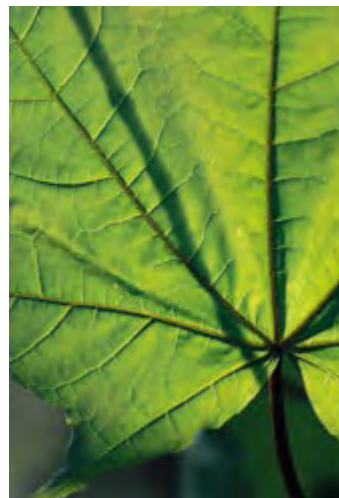
## SEE-U and Sustainable Development



SEE-U is a unique academic opportunity that allows you to work alongside scientists and your fellow students to develop an understanding of ecological processes and systems, and the relation of these systems to Sustainable Development. SEE-U highlights major threats to biodiversity and equips you with tools useful in combating these threats.

You will come away from the program with an appreciation of scientific methods and how to apply them as well as an informed perspective on the role of nature, its conservation, and its connection to genuine Sustainable Development.

*Columbia Students who are concentrators in Sustainable Development can use course credit from the SEE-U program to fulfill requirements and electives in the concentration. The SEE-U Program fulfills courses in the Skills and Systems areas of the concentration as well as in the Practicum. Students should speak with their academic advisor if they have any questions.*



## Evaluation

**You will be graded on the following:**

### **Individual Project**

The individual project gives you the opportunity to explore a testable question of interest in the respective location.

The Individual project entails:

- Literature Searches
- Draft and Final Proposal
- Field Data collection
- Data Analysis
- Final Presentation

You will have the support of teachers and field assistants, including workshops on how to carry out literature searches and the opportunity to learn field techniques before developing the individual project. You will be supported in the design and development process.

### **Field Practical**

The field practical is a chance for you to test out your newly acquired field skills to answer a testable question in groups. You will go through the formulation of ideas as a group, presentation of your ideas to teachers, field data collection, analysis, and a power point oral presentation. The field practical stresses the community work of science, as many scientists in the field must successfully communicate with a large team to answer important large-scale questions. The field practical allows you to design and implement a project in a group setting.

### **Journal**

You will be required to keep a journal while you are at your field sites. The journal acts as an account of your work both in and outside the classroom. A certain number of entries are required and should be a reflection on your experience at the site and your day-to-day activities. An electronic blog may also serve as your journal as well.

### **Participation**

Participation is graded on attendance, punctuality, group discussions, presentations and overall effort for the course.

### **Quizzes**

Periodic quizzes will be given during the course. The main purpose of the quizzes is to keep you up to date with the assigned readings and garner any topic that was unclear in lecture.

## SEE-U Summer 2013

### **Academic Credit**

Upon completion of the SEE-U program you will receive six academic credits from Columbia University.

### **Admission Requirements**

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

*For non-Columbia students:* Columbia maintains high academic standards and it is very likely that your institution will accept these six credits as fulfillment for laboratory requirements. If you have any questions or if your advisor would like to speak with one of our faculty members, please call or e-mail us.

### **Costs**

- Tuition: \$8,640 (\$1,440 per credit; applies to all field sites).
- Room and board: \$1,800.
- A non-refundable deposit of \$500 is required for the program (applied toward the tuition).
- Airfare is not included. Additional costs may apply (transportation, shopping, books, supplies, etc).

*\*Costs may be subject to change at any time.*

### **Fellowships**

Need-based fellowships are available in amounts up to \$3,000 towards the SEE-U program. To apply for a fellowship simply fill out that portion of the application.

*\*Students applying to SEE-U Jordan must be enrolled in Columbia University at Columbia College, General Studies, or Barnard College.*

## SEE-U Fulfills Columbia University Requirements

**Students from all undergraduate institutions across the United States are encouraged to apply to the SEE-U program**, however the following information applies to Columbia University students, but may be helpful to non-Columbia students in determining how the credits may count at other universities.

Depending on what school you are enrolled in at Columbia University and your major, the SEE-U program can be used to fulfill different sets of requirements. We encourage you to speak with your academic advisor regarding how the SEE-U program can fit within your academic program. In general:

### **Columbia College Non-Science Majors**

You can use the SEE-U program to fulfill two of your core science requirements.

### **Columbia College Environmental Biology Majors**

Three credits of the SEE-U program can be used to fulfill an upper level laboratory requirement. The remaining three credits can be applied to either your general distribution or college credit requirements.

### **Columbia College Sustainable Development Concentrators**

The SEE-U program fulfills courses in the Skills and Systems area of the concentration as well as in the Practicum. You should speak with your sustainable development concentration advisor if you have any questions.

### **Columbia College Science Majors**

How the SEE-U program is applied will depend on your major. Check with your advisor and contact us if you need further assistance. Generally, three credits are used to fulfill an upper-level laboratory requirement and the remaining three credits can be applied to either your general distribution or college credit requirements.

### **Barnard College Non-Science Majors**

SEE-U can be used to fulfill one of the two five-credit science requirements. In the five weeks of the SEE-U program you can fulfill an entire intensive semester of science lab requirements.

### **Barnard College / Science Majors**

SEE-U is most often used to fulfill an upper-level laboratory requirement. How the course is applied will depend on your major. Check with your advisor and contact us if you need further assistance.

### **CU General Studies / Jewish Theological Seminary Non-Science Majors**

You can use the SEE-U program to fulfill two of your core science requirements.

### **CU General Studies / Science Majors**

How the course is applied will depend on your major. Generally, three credits are used to fulfill an upper-level laboratory requirement and the remaining three credits can be applied to either your general distribution or college credit requirements. We encourage you to speak with your academic advisor.

## Application Checklist

\_\_\_ **Application**

\_\_\_ **Transcript**

\_\_\_ **Essay**

A short essay (no more than 500 words) describing why you have chosen to participate in the SEE-U program.

\_\_\_ **Letter of Recommendation**

One letter of recommendation from a faculty advisor or instructor.

\_\_\_ **Application Fee**

A nonrefundable \$95 application fee, payable by check or money order to "Columbia University"

**For more information please contact EICES:**

**Desmond Beirne**

Director of Marketing and Student Affairs, EICES  
Earth Institute Center for Environmental Sustainability (EICES)  
Columbia University  
10th Floor Schermerhorn Extension  
1200 Amsterdam Avenue  
New York, NY 10027  
Tel 212-854-0149  
Fax 212-854-8188  
[djb2104@columbia.edu](mailto:djb2104@columbia.edu)

**You may also visit our website at: [www.EICES.columbia.edu](http://www.EICES.columbia.edu)**