

Summer Ecosystem Experiences for Undergraduates (SEE-U)

Field Methods in Ecology & Conservation Biology in Brazil

ENVB 2102 & ENVB 2103 (6 credits)

Summer 2014

Session 1: May 30 – July 4, 2015

Session 2: July 11 – August 15, 2015

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Teaching Assistant: TBD

Course rationale:

The Summer Ecosystem Experiences for Undergraduates (SEE-U) program provides undergraduate students of all majors with a global understanding of ecology and environmental sustainability. The SEE-U program gives you the opportunity to participate in a combination of lectures and labs, while conducting environmental fieldwork in unique natural settings around the world.

Through a partnership between EICES and the Instituto de Pesquisas Ecológicas (IPÊ), the SEE-U Brazil program provides you with a unique opportunity to live and learn in one of the most threatened ecosystems on the planet – the Atlantic Forest. Named one of Conservation International's 25 biodiversity hotspots, the Atlantic Forest is home to over 20,000 species of plants and 2,200 species of mammals, birds, reptiles, and amphibians. The Atlantic Forest contains several different canopies that bolster a rich diversity of vegetation including ferns, mosses, and epiphytes. As a world leader in primate diversity some of the Atlantic Forest's most iconic species are found nowhere else in the world, including the golden lion tamarin and woolly spider monkey. Threats to the Atlantic Forest include illegal logging and extraction of valuable timber species, land conversion to agriculture, pasture, and forest plantations, and development of urban areas.

The two main ecological regions of this biodiversity hotspot are the interior Atlantic Forest, an expanse that borders the foothills of the Serra do Mar into southern Brazil where IPÊ is located, and the coastal Atlantic Forest, a narrow strip of 50-100 kilometers along the Brazilian coast. You will also travel with the SEE-U program and stay in Picinguaba, located within Serra do Mar State Park, where the native vegetation of the forest meets the sand in this largest continuous protected area of the Atlantic Forest. Containing over 40% of all amphibians, birds, reptiles, and mammals in the region, Serra do Mar State Park provides an ideal location for you to study the coastal Atlantic Forest and marine ecosystems of Brazil.

Course description:

With an emphasis on ecological interactions and conservation, this course will introduce students to the enormous diversity of life on Earth, from genes to species to ecosystems, as well as to the field methods used to investigate it. In addition to integrating field and classroom approaches to the study of terrestrial and marine ecology, the course will also use basics of genetics and evolutionary biology to explore how diversity is generated and maintained. Moreover, the course will explore current issues in sustainable development and resource management in Brazil. The centerpiece of the course will be the individual research project: students will learn how to plan, execute, and present ecological research and will have the opportunity to work with conservation practitioners on cutting-edge projects with real-world implications. No previous knowledge of science is assumed.

COURSE OBJECTIVES

- Appreciate the diversity of taxa and ecosystems on land and in the seas, particularly in Brazil.
- Explore current controversies regarding the sustainable management of water, energy, and biodiversity in Brazil.
- Understand the effects of human activities (both positive and negative) on species persistence and ecosystem functioning.
- Become familiar with methods of research, management, and analysis through exposure to primary literature.
- Gain an understanding of the scientific method and its theoretical underpinnings.
- Become fluent in varied methods of ecological sampling and statistical analyses.
- Learn to present research in both written and oral forms.

Grading:

- **Daily Activities (Exercises, ConBio Discussion) 30%**
 - Participation in daily exercises
 - Oral presentation
 - Participation in class discussions
 - Write-up
 - ConBio Discussions
- **Individual Projects 30%**
 - Final Proposal (10% of Individual Projects total grade)
 - Draft Final Report (.ppt preferred) (20% of Individual Projects total grade)
 - Final Report in PowerPoint format (50% of Individual Projects total grade)
 - Oral Presentation of Final Report (20% of Individual Projects total grade)
- **Examinations 30%**
 - Field Practical - 15% of overall grade
 - Quizzes - total of 15% of overall grade
- **Journal 5%**
 - Completeness & Creativity
- **Overall Participation 5%**

Required text:

The Atlantic Forest of South America: Biodiversity Status, Threats and Outlook by Carlos Galindo-Leal and Ibsen de Gusmao. 2003. Island Press. ISBN-10: 15596398x.

Sooretama: The Atlantic Forest of Brazil by Francis do P. 1992. ISBN-10: 9051030770.

Faculty statement on academic integrity:

The intellectual venture in which we are all engaged requires of faculty and students alike the highest level of personal and academic integrity. As members of an academic community, each one of us bears the responsibility to participate in scholarly discourse and research in a manner characterized by intellectual honesty and scholarly integrity.

Scholarship, by its very nature, is an iterative process, with ideas and insights building one upon the other. Collaborative scholarship requires the study of other scholars' work, the free discussion of such work, and the explicit acknowledgement of those ideas in any work that inform our own. This exchange of ideas relies upon a mutual trust that sources, opinions, facts, and insights will be properly noted and carefully credited.

In practical terms, this means that, as students, you must be responsible for the full citations of others' ideas in all of your research papers and projects; you must be scrupulously honest when taking your examinations; you must always submit your own work and not that of another student, scholar, or internet agent. Any breach of this intellectual responsibility is a breach of faith with the rest of our academic community. It undermines our shared intellectual culture, and it cannot be tolerated. Students failing to meet these responsibilities should anticipate being asked to leave the program.

Plagiarism, which is commonly understood as using another's words or ideas as one's own, will be rewarded with an 'F' and will be reported to the Dean of Student Affairs in charge of academic integrity.

For more information see the Columbia University Undergraduate Guide to Academic Integrity at: <https://www.college.columbia.edu/academics/integrity>.