

EFB 523 Tropical Ecology • Syllabus for Spring 2020

Dates & Locations:

F 8:00-9:20am, 12 Illick Hall +12-day field trip over Spring Break to the Amazon and Andes, Ecuador

Instructors:

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Prerequisites: One year of college biology and a course in ecology

Course Fee: \$2,695 covers air transportation to and from Ecuador, room and board, and travel in Ecuador. It **must** be paid in entirety by Friday **Jan. 17th, 2020** (including \$200 deposit to be paid before registration).

Your **PASSPORT** is your own responsibility – it is **REQUIRED** to board the plane. Visa is not required. **YELLOW FEVER VACCINATION IS REQUIRED** (additional vaccinations recommended).

Course Resources:

- **REQUIRED TEXT:** Kricher, J. 2011. **Tropical Ecology**. Princeton University Press.
<http://www.amazon.com/Tropical-Ecology-John-Kricher/dp/0691115133>
- Additional resources posted on the Blackboard course site or placed on reserve at Moon Library. The course also owns a small library of books, reports, flora manuals and related materials maintained by the course instructors. Feel free to stop by to browse and borrow!

Learning Objectives:

1. To investigate the biodiversity found in tropical ecosystems throughout the world
2. To study the interactions between biotic and abiotic factors in tropical environments
3. To consider human effects on tropical ecosystems and issues related to conservation of biodiversity and global climate change in the tropics
4. To use Ecuador as a model exemplifying broad principles of tropical ecology and resource management and conservation

Approach:

Before and after the trip, in class, we will engage a series of **key questions** throughout the semester, using both guided **discussions** and **lectures**. As this is a 500-level course, **you are expected to complete all assigned readings prior to class** and take advantage of additional readings and resources provided in class or via the course's Blackboard site and public course web site. We will be reading selected sections from the textbook and additional materials that relate directly to the questions and topics of each class. If you neglect to read before class, you will be unprepared to answer questions and participate in our discussion; this could negatively impact your grade.

The focus of this course is the immersive **twelve-day field experience in Ecuador**, with day trips to rainforest and other tropical ecosystems, followed by evening lectures by course instructors or local guest speakers at Tiptuni Biodiversity Station. We will also examine various ecosystems along the altitudinal gradient of the Andes from lowland rainforests to near the snow line.

A **planning meeting** will be scheduled early in the semester to provide detailed information on the travel itinerary, trip agenda, accommodations, medical considerations and related topics; and to answer any questions or concerns that may arise. This meeting is **MANDATORY** for all students taking the course (we will provide pizza and refreshments).

While in Ecuador, you are expected to keep a detailed **field journal** that includes your daily observations, sketches, lecture notes [there will be at least four evening lectures during the trip], and any other records of the experience. The field journal itself should be a sturdy, waterproof notebook, such as a ‘Rite-in-the-Rain’ book, or something similar that can stand up to the elements. A ragged stack of loose papers or a section in an old battered notebook will not suffice – while it does not need to be fancy or expensive, it *must be a bound notebook dedicated solely for this purpose*. (If you are unsure if your journal is suitable, ask before leaving on the trip.) The field journal should not only be a detailed account of your experience in Ecuador – but will likely be a *crucial study aide* for Exam II that follows the Ecuador trip!! You will be asked to turn in this notebook on the day of that exam for credit towards your final grade. Journals will be returned on or before the last class meeting.

Evaluation:

Exams will consist primarily of short-answer questions. The content of the exams will draw from class discussions and lectures, as well as directly from the assigned readings. The second exam will cover exclusively topics and experiences from the Ecuadorian field trip; therefore a detailed field journal will greatly help you to study for that exam.

Final course grades will be based on the following:

Exams I-III	Field Journal	Participation	Total possible:
100 pts each	75 pts	25 pts	400 pts

Grades, based on a percentage of points available, will be assigned on a scale similar to the following [but may vary slightly from year to year]:

100-											
92	91-90	89-88	87-82	81-80	79-78	77-72	71-70	69-68	68-62	62-60	<60
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

E-mail: Notifications will be sent to student’s *syr.edu* address. Students are responsible for knowing the information from course emails. **Set up email forwarding if using another address.**

Make-up exams: Provided only if the student has a valid excuse with an official confirmation such as: (1) Illness requires a note from SU Student Health Center, (2) Hospitalization–requires a hospital or physician’s note, (3) Death in the Family–requires an Obituary or Mass card, (4) Traumatic personal issues–requires ESF Student Life notification to instructors.

Academic dishonesty: Academic dishonesty is a breach of trust between a student and other students or the instructor(s) and it includes (but is not limited to) plagiarism, cheating, and other forms of academic misconduct. The Academic Integrity Handbook contains further information and guidance (<http://www.esf.edu/students/integrity/>). Academic dishonesty may lead to academic penalties as per the ESF Grading Policy (<http://www.esf.edu/provost/policies/documents/GradingPolicy.11.12.2013.pdf>).

Students with learning and physical disabilities: SUNY-ESF works with the Office of Disability Services (ODS, <http://disabilityservices.syr.edu>) at Syracuse University. Students requiring disability-related accommodations can contact ODS (804 University Av., Room 309, 315-443-4498) to schedule an appointment and discuss their needs and the process. Students may also contact the ESF Office of Student Affairs (110 Bray Hall, 315-470-6660) for assistance. Authorized accommodation forms must be in the instructor's possession 1 week prior to any anticipated accommodation. Accommodations may require early planning and generally are not provided retroactively, so please contact ODS as soon as possible. Note that the field component in Ecuador rests on students’ ability to hike on forest and mountain trails.

EFB 523 Tropical Ecology

Course Schedule for Spring 2020

Friday 8:00–9:20am; Room 12 Illick Hall

Date	Key Question(s)	Readings (textbook, selected papers)
Jan. 17	(1) What and where are the tropics? (Stewart)	Tropical Climate: 19-30; Diversity: 109-121; Climate, Energy Availability & Species Richness: 130-132; Dynamics of Drought: 225-226 Course payment due.
Jan. 24	(2) How can all of these species coexist? (Dovciak)	Rainforest Physiognomy 83-90; Climbers, Lianas, Stranglers & Epiphytes: 99-107; Paradox of the Trees: 154-159 & 163-169; Forest Gaps: 215-220; Niche partitioning 229-236; Duyck et al. (2012)
Jan. 31	(3) Where did all of these species come from? (Stewart)	Speciation: 58-71; Vicariance & Endemism 51-58; Tropics as cradle or museum: 124-130
Feb. 7	<i>Classes cancelled due to weather</i>	
Feb. 14	(4) Does diversity lead to more diversity? (Dovciak)	Myriads of Interactions: 227-228; Seed Shadows & Ecology of Seed Dispersal: 238-250; Fish as Amazonian Seed Dispersers: 256-258; Coevolution: 258-271; Bascombe (2009)
Feb. 21	(5) Why are the tropics so diverse? (Stewart)	What is Biogeography: 38-45; Diversity in the Tropics: 132-151;
Feb. 28	(6) Why do tropical mountains support high biodiversity? (Dovciak)	Ricklefs & Lovette (1999) ; Montane Forests: 422-428 & 436
March 6	Hourly Exam 1--Materials from weeks 1-6	
March 22	(7) How do tropical ecosystems respond to disturbance? (Dovciak); <i>given at San José de Puenbo, Ecuador (not a part of the field trip exam on April 3)</i>	Lugo et al. (1983) ; Disturbance, Gaps & Ecological Succession: 188-196; Pioneer Successional Species: 202-207; Fragmentation: 500-509; Fragmentation, Edge Effects, Matrix: 513-516; Emerging Pathogens: 548-550
March 11-24	Am I ready for tropical adventure? Field trip to Amazon and Andes Mountains, Ecuador (Stewart & Dovciak)	Passports, field guides, sunscreen & gear
March 27	(8) How have humans and nature interacted in the tropics? (Stewart)	Human Ecology in Tropics: 470-471; Terra Preta del Indio: 476; Hunting & Gathering: 478-480; Emergence of Tropical Crops & Agriculture: 484-494; Ethnobotany: 494-499
April 3	Hourly Exam 2--Materials from the Field Trip to Ecuador	
April 3	Field notebook due after exam	
April 10	(9) How will climate change affect tropical ecosystems? How do tropics affect global climate? (Dovciak)	Primary Productivity: 324-327; Terrestrial Ecosystem Model: 329-332; What is a Carbon Sink: 333-336; Carbon Loss from Deforestation & Fire: 340-341; Drought Sensitivity of Tropical Forests 345-358; Climate Change 544-548
April 17	(10) How can tropical ecosystems and their biodiversity be sustained? (Stewart)	Approaches to Understanding Biodiversity: 517-529; Deforestation: 534-541; Restoration & Rehabilitation: 554-559 (incl. REDD & PES)
April 24	Hourly Exam 3--Materials from weeks 7-10	
NO Final Exam !		

Note: The course schedule may change based on course needs and logistics.