The Future of Rain Forests

IDS 2935 - Quest 2 - Fall 2022

Course Description & Information

Tropical Rain Forests cover approximately 15% of the Earth's land surface but contain over 50% of the world's biodiversity. They are also the home to millions of people, the source of products central to our lives, shape global climate, and are being cleared at unprecedented rates. Students in this class will investigate the same fundamental questions asked by scientists that study rain forests: Why are we fascinated by rain forests? How have stereotypes about them permeated everything from pop culture to international relations? What gave rise to their remarkable biodiversity? What are the drivers and consequences of deforestation? Is rain forest conservation compatible with socioeconomic development?

By the end of the course students will be able to:

- Recognize and describe stereotypes about rain forests & their residents
- Analyze rain forest tropes in art, literature, & popular culture
- Discuss & evaluate hypotheses for the origins and maintenance of tropical biodiversity
- Explain & compare human history in rain forests
- Review contemporary threats to rain forests
- Analyze and visualize data on deforestation
- Review and contrast strategies for rain forest conservation & restoration
- Identify rain forests in their daily lives & set personal goals for advancing their conservation
- Produce materials for communicating about rain forests to family and peers

Class Day, Time, & Location

> **Tuesday Period 3** (9:35 - 10:25 AM) in LIT-0237 *and*
> **Thursday Periods 3-4** (9:35 - 11:30 PM) in MAEB-0211.

Instructor: Dr. Emilio M. Bruna

- **email:** embruna@ufl.edu [email messages via the course Canvas page are preferred]
- **Phone**: (352) 846-0634
- **Office Location & Office Hours**: Wednesday and Friday 10:30 am - 12 noon in the Tropical Ecology & Conservation Lab, 711 Newell Drive (for a map to the lab click the "Contact" link at BrunaLab.org). You can come to office hours in person or via Zoom (link on class canvas page). If you like, you *sign can up for a specific time slot in advance at embruna.youcanbook.me*. If you can't make it to Office Hours on those days/times let me know and we will find a time that works for you.

Teaching Assistant: Thomas Smith

- **email:** thomassmith@ufl.edu [email via the course Canvas page is preferred]
- **Office Location & Office Hours**: TBD in the Tropical Ecology & Conservation Lab (same location as Dr. Bruna)

Reasons you should come to Office Hours.

- Introduce yourself
- *free tea, coffee, or espresso in our lab kitchen*
- Ask for clarification on assignments
- Discuss work we did in class to make sure you understood the key points
- Get feedback on ideas for class projects
- Ask questions about applying to graduate school
- Ask for help arranging a study group
- *You don't need a reason…just come on by.*

Required & Recommended Course Materials: All course materials, including readings and videos, will be made available on the course Canvas page. However, many of the assigned articles from the New York Times have dynamic multimedia data visualizations and video that can't be appreciated in pdf format. *Students in this class should sign up for free online access to the NY Times by following the instructions at this UF Libraries Website.*

GenEd Information

- **Primary Designation**: Biological Sciences
- **Secondary Designation (if seeking)**: International (N)
- **Writing Designation**: None
- *A minimum grade of C is required for general education credit*
- More detailed GenEd and Quest Course Objectives/SLOs are in Section VIII

Graded Coursework

Assignment	Requirements	Points
In-Class Activities	20 x 20 pts each	400
Movie Reviews	Reviews + data sheets	100
Analytic Essay	Deforestation Analysis (1000 wds) + graphs	150
Reflective Essay	Essay (500-700 wds) + Palm Oil Survey	150
Final Project	Campaign Items + Description	200
		TOTAL = 1000

Semester Overview & Key Dates

WEEK		DATE	TOPIC	ASSIGNMENT DISTRIBUTED or DUE
WHY ARE WE FASCINATED BY TROPICAL RAIN FORESTS?				
Week 1	1	23-Aug	Class Starts Thursday!	
	2	25-Aug	Introductions & Historical Narratives	
Week 2	1	30-Aug	Rain forest imagery in Art & Lit	
	2	1-Sep	The Rain Forest in Pop Culture	**Movie Reviews Assigned**
THE ECOLOGY & EVOLUTION OF TROPICAL RAIN FORESTS				
Week 3	1	6-Sep	What is a Rain Forest?	
	2	8-Sep	What is a Rain Forest? (cont.)	
Week 4	1	13-Sep	Patterns of Biodiversity	
	2	15-Sep	The origins of tropical biodiversity - FLMNH Trip	
Week 5	1	20-Sep	Forest disturbance & the maintenance of diversity	
	2	22-Sep	Forest disturbance & the maintenance of diversity	
Week 6	1	27-Sep	The Paradox of Luxuriance	
	2	29-Sep	Humans are part of rain forests	
Week 7	1	4-Oct	Narratives Revisited: Biology, History, Fiction, Reality	**Movie Reviews Due**
	2	6-Oct	JUNGLE FILM FESTIVAL 2022	
THE DRIVERS AND IMPACTS OF DEFORESTATION				
Week 8	1	11-Oct	Forest cover and forest loss I	
	2	13-Oct	Forest cover and forest loss II	**Deforestation Essay Assigned**
Week 9	1	18-Oct	Drivers of Deforestation I: Timber, Mining, Infrastructure	
	2	20-Oct	Drivers of Deforestation II: Agriculture	
Week 10	1	25-Oct	Climate change	
	2	27-Oct	Climate change (cont.)	**Deforestation Essay Due**
THE FUTURE OF TROPICAL RAIN FORESTS				
Week 11	1	1-Nov	Consumer choices	**Palm Oil Essay Assigned**
	2	3-Nov	DURIAN FEST 2022	
Week 12	1	8-Nov	International frameworks	
	2	10-Nov	Local Initiatives, Empowered Communities	**Palm Oil Essay Due**
Week 13	1	15-Nov	Protected areas	**Conservation Campaign Assigned**
	2	17-Nov	Forest restoration & regeneration	
Week 14	1	22-Nov	Project Work Day	
	2	24-Nov	No class - holiday	
Week 15	1	29-Nov	Tropical Rain Forests & Global Health	
	2	1-Dec	Rain Forest Headlines	
Week 16	1	6-Dec	What will we do?	**Conservation Campaign Due**
		8-Dec	No Class - Reading Days	
Finals Week				
		16-Dec	Extra Credit / Revised Campaigns due by 2:30 pm	

Assigned Reading/Viewing

Please read or watch the assigned materials *before* class. The assignment for each session is subject to change based on current events; changes will be announced via Canvas.

WEEK 1-2: Introductions & Historical Narratives

Excerpts from Historical Narratives [link to pdf]

WEEK 2-1 Rain forest imagery in Art & Literature

Excepts from Poetry and Fiction [link to pdf]

WEEK 2-2 The Rain Forest in Pop Culture

Jolly, Priscilla. 2021. 'Godzilla vs. Kong': Monster movies evoke adventure but also 'dangers' of tropics. *The Conversation.* [link to read online]

WEEK 3-1 What is a Rain Forest?

Why does Earth have Deserts? [link to video]

WEEK 3-2 What is a Rain Forest? (cont.)

None

WEEK 4-1 Patterns of Biodiversity

Why Are There So Many Species Near the Equator? link to video

WEEK 4-2 Coevolution & the origins of tropical biodiversity

Is this the biggest flower in the world? "BBC Earth: Corpse Flower Stinks of Death" [link to video]. (A slightly less dramatic video in which you can get a better idea of the flower's size is [here]

Or maybe it's this one: The Titan arum [link to video]

An introduction to Army Ants: [link to video]

Optional: A more sophisticated (but actually less complete) overview is offered by the BBC: [link to video]

Optional: A closer look at the Army Ant Birds: [link to video]

WEEK 5-1 Forest disturbance, dynamics, & the maintenance of diversity

None

WEEK 5-2 Forest disturbance, dynamics, & the maintenance of diversity

None

WEEK 6-1 The Paradox of Luxuriance

None

WEEK 6-2 Humans are part of rain forests

Langewiesche, William. 2022. "The War for the Rainforest." *NY Times*. [read online]

WEEK 7-1 Narratives Revisited: Biology, History, Fiction, Reality

Anthony Bourdain's Parts Unknown: Congo (S1E8) [link to video]

Bourdain's Field Notes: Congo [read online]

NPR's Throughline Podcast: "There Will Be Bananas" [listen online]

WEEK 7-2 JUNGLE FILM FESTIVAL 2022

None

WEEK 8-1 Forest cover and forest loss I

Nolen, Stephanie (Reporting) with Elkaim, Aaron Vincent (Photographs). 2018. "Inside the Amazon's Deforestation Crisis". *The Globe and Mail*. [read online].

WEEK 8-2 Forest cover and forest loss II

Searcey, Dionne (reporting) and Gilbertson, Ashley (photographs). 2022 "Raft by Raft, a Rainforest Loses Its Trees" *NY Times*. [read online]

WEEK 9-1 Drivers & Consequences of Deforestation I: Mining, Timber, Fire, Infrastructure

Andreoni, Manuela, Blacki Migliozzi, Pablo Robles and Denise Lu. Photographs by Victor Moriyama. 2022. "The Illegal Airstrips Bringing Toxic Mining to Brazil's Indigenous Land". *NY Times*. [read online]

Andreoni, Manuela. 2022. "Stopping wildfires before they start". *NY Times*. [read online]

WEEK 9-2 Drivers & Consequences of Deforestation II: Agriculture

Devouring the Rain Forest. *Washington Post*. [read online]

Robles, Pablo, Anuradha Raghu, Adam Majendie and Jin Wu 2021. "The World's Addiction to Palm Oil Is Only Getting Worse". *Bloomberg News*. [read online]

Mason, Margie & McDowell, Robin. 2020. "Palm oil labor abuses linked to world's top brands, banks". *Associated Press*. [read online]

Beech, Hannah. One Casualty of the Palm Oil Industry: An Orangutan Mother, Shot 74 Times. *NY Times*. [read online]

WEEK 10-1 Climate change

None

WEEK 10-2 Climate change (cont.)

Author. 2020. "The Congo rainforest is losing ability to absorb carbon dioxide. That's bad for climate change". *Washington Post*. [read online]

Pearce, Fred. 2018. "Rivers in the Sky: How Deforestation Is Affecting Global Water Cycles." *Yale360*. [read online]

Fisher, Max. 2019. " 'It's Really Close': How the Amazon Rainforest Could Self-Destruct" *NY Times*. [read online]

Chad Frischmann's Ted Talk: "100 solutions to reverse global warming" [link to video] Climate Action Tracker Ted Talk: "The State of the Climate Crisis in 2021" [link to video]

Serkez, Yaryna. 2020. Every Place Under threat. *NY Times*. [read online]

Optional: learn about the EN-ROADS simulator we will be using in class at this [link to website]. You can even start experimenting with it here: [link to site]

WEEK 11-1 Consumer choices

Carodenuto, Sophia. 2021. "Chocolate fix: How the cocoa industry could end deforestation in West Africa". *The Conversation*. [read online]

Hunt, Chris and Premathilake, Rathnasiri. 2018. "Prehistoric people started to spread domesticated bananas across the world 6,000 years ago." *The Conversation*. [read online]

Optional: Mufson, Steven and Georges, Salwan. 2019. "The trouble with chocolate" *Washington Post* [read online]: some amazing maps, pictures, and data visualizations.

Optional: Lawal,Shola. 2020. "Our Endless Appetite For Chocolate Has Bitter Environmental Consequences" *Huffington Post*. [read online]. *Really comprehensive and with great photos*.

Optional: Williamsm, Wyatt. 2021. "How Your Cup of Coffee Is Clearing the Jungle". *NY Times*. [read online] *Longer, but really gripping and the article includes a link to an audio version if you prefer to listen to it*.

WEEK 11-2 DURIAN FEST 2022

Weintraub, Karen. 2019. "They're Smelly and Spiky, and They Need Bats to Pollinate Them". *NY Times*. [read online]

Wharton, Rachel. 2020. How the Tip of Florida Became a Tropical-Fruit Paradise. *Atlas Obscura*. [read online]

Frías, Carlos. 2022. “Oddly colored and somewhat phallic: How Miami’s rare tropical fruit went TikTok viral.” *Miami Herald*. [read online]

WEEK 12-1 International frameworks

None

WEEK 12-2 Local Initiatives, Empowered Communities, & Activism

Ruth Maclean (reporting, writing), Caleb Kabanda (reporting), and Nanna Heitmann (photography). 2022. “What do the protectors of Cono’s peatlands get in return?” *NY Times*. [read online]

Kimbrough, L. 2021. “How settlers, scientists, and a women-led industry saved Brazil’s rarest primate”. *Mongabay.com* [read online].

“A vanishing forest reborn.”[read online] (some great drone footage of the location in the story above and more about Laury Cullen’s efforts [read online]

Don’t underestimate what one person can do on their own: “BBC World Service: The man who grew his own rainforest” [link to video] *(keep an eye out for the Euglossine bees we learned about earlier in the semester…you can see them collecting scented oil from flowers at 2:04).*

Arellano, Astrid and Sierra Praeli, Yvette. 2022. “A look at violence and conflict over Indigenous lands in nine Latin American countries”. *Mongabay.com* . [read online]

WEEK 13-1 Protected areas

Dasgupta, Shreya (with research by Annika Schlemm & Zuzana Burivalova). 2017. “Do protected areas work in the tropics?” Mongabay.com. [read online]

WEEK 13-2 Forest restoration & regeneration

Medici, Patricia. 2015 TED Fellows Talk. “The coolest animal you know nothing about…and how we can save it”. [link to video]

“Do tapirs defecate in the woods?” 2019. *The Economist* [read online]

Come prepared to make some money: we’re looking into the economic benefits of setting aside land (or not) for conservation. To prepare, look this document over before class, it should take ~10 minutes max.: externalities and game intro.

WEEK 14-1 Project Work Day

None

WEEK 14-2 No class: Thanksgiving Holiday

None

WEEK 15-1 Tropical Rain Forests and Global Health

Lavinas Picq, Manuela 2020. "Spreading Faith, and Disease". *NY Times*. [read online]

WEEK 15-2 Rain Forest Headlines

Nicas, Jack (reporting) and Moriyama,Victor (Photos, Video). 2022. Inside the Amazon Journey That Left a Journalist and an Activist Dead. *NY Times.* [read online]

WEEK 16-1 What will we do?

Conservation Attitudes Survey: [link to survey]

Grading, Attendance, and Participation

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Attendance: Though attendance is not required, many of the sessions we we will be completing activities in class that count towards your grade. Most of these can be completed independently, but by doing them in class you will benefit from working collaboratively with the other students. *Some of the in-class activities, however, can not be completed on your own.* If you miss class on one one of these days, you can elect to make up the lost points with extra-credit assignments. ***If you need to miss class for any reason, please let me know as soon as possible***. We will make arrangements for you to complete any assignments and go over any material you will be missing. I would much rather you focus on your health, attend your conference, or support friends and family in need than struggle to turn in assignments.

Participation: Consistent informed, thoughtful, and considerate class participation is encouraged (and in some cases required). If you have personal issues that prohibit you from joining freely in class discussion, e.g., shyness, language barriers, etc., that is not a problem. Please me know me as soon as possible and we will discuss alternative modes of participation.

Grade Assignment (based on % of possible points):

A = 94–100%, A- = 90–93%
B+ = 87–89%, B = 84–86%, B- = 80–83%
C+ = 77–79%, C = 74–76%, C- = 70–73%
D+ = 67–69%, D = 64–66%, D- = 60–63%
E < 60

Regrades: Requests for re-evaluation of any quizzes, exams, or assignments will only be considered if accompanied by a letter explaining why you think you deserve additional credit and the number of additional points you think you deserve. The deadline for submitting these requests is one week after the work has been returned.

Grade Points: For information on how UF assigns grade points, visit: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

COVID-19 Statement

It's not over, people. Things will to continue to be unpredictable as new variants emerge, and . As such, situations may arise during the semester that complicate course participation (for students) or instruction (for the TA or Professor). If you are affected in any way by Covid-19, let us know so we can plan accordingly. You should not come to class if you suspect having contracted Covid-19 or are ill; just let us know and we'll work something out. Finally, please be respectful of others and their health decisions or needs. Mask use is still recommended by UF, as is vaccination. More guidance can be found at the CDC website (https://www.cdc.gov/media/releases/2022/p0811-covid-guidance.html) and the UF Covid Resources Page (https://coronavirus.ufl.edu/)

Other Course Policies

Children in the Classroom: UF does not have a formal policy on children in the classroom. The policy described below reflects my commitment to student-parents.

- **You and your nursing baby are welcome in class anytime.** I never want students to feel like they have to choose between feeding their baby and continuing their education.
- **Occasionally bringing a child to class because of a gap in care is perfectly acceptable.** I understand that minor illnesses and unforeseen disruptions in childcare often put parents in the position of having to chose between attending class or staying home to care for them. Let me know in advance if at all possible.
- **If you bring your child to class:** Please sit close to the exit so that if your child needs attention you can more easily step outside until their needs have been met (and so other students can continue learning). Non-parents in the class, I ask that you please be willing to offer your seat near a door to parents as needed.
- **Let me know how i can help.** Finally, I understand that balancing school, childcare and perhaps even a job can be exhausting and a barrier to learning. I maintain the same high expectations for all students in my class, and will work with you to find ways you can balance your responsibilities as a parent and student.

Materials and Supplies Fees: There are no additional fees for this course.

Students Requiring Accommodation: Students with disabilities or learning barriers that would like to request academic accommodations should connect with the Disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. Please share your letter with me and discuss access needs as early as possible in the semester so that I can do whatever is necessary to ensure your participation and learning.

UF Evaluations Process: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

University Honesty Policy: UF students are bound by The Honor Pledge which states, "We, the

members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have questions or concerns, consult with the instructor or TAs.

In-Class Recording

- **Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled.** The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.
- **A "class lecture" is:** an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.
- **Publication without permission of the instructor is prohibited.** To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code

UF Resources

Counseling and Wellness Center

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.
- University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

Field and Fork Pantry: The Hitchcock Pantry can provide food and toiletries for students experiencing food insecurity. https://pantry.fieldandfork.ufl.edu/.

The Writing Studio: The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at http://writing.ufl.edu/writing-studio/ or in 2215 Turlington Hall for one-on-one consultations and workshops.

General Education and Quest SLOs/Objectives

Table 1: **Student Learning Objectives: GenEd Primary Area and Quest**

Biological Sciences Objectives	**Quest 2 Objectives**	**Course Objectives (This course will…)**	**Objectives will be Accomplished By…**
Biological science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the life sciences.	Address in relevant ways the history, key themes, principles, terminologies, theories, or methodologies of the various social or biophysical science disciplines that enable us to address pressing questions and challenges about human society and/or the state of our planet.	…explore the evolutionary and ecological factors underlying the distribution of biodiversity in tropical rain forests, how humans use and alter rain forests, and the social, economic, and biological consequences of these activities.	…reading and discussing research about rain forests, gathering and analyzing data, discussing major themes and scientific issues with experts from around the world.
Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern biological systems.	Present different social and/or biophysical science methods and theories and consider how their biases and influences shape pressing questions about the human condition and/or the state of our planet.	…emphasize how molecular biology, genomics, remote sensing, computational tools, and other scientific developments have advanced our understanding of the ecology and evolution of rain forest biota, resulting in both novel hypotheses and implications for other disciplines.	…reading foundational and contemporary studies to compare their limitations and implications, while also learning and reflecting on the historical reasons behind the dominance of particular ideas or research communities.
Students will formulate empirically-testable hypotheses derived from the study of living things, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.	Enable students to analyze and evaluate (in writing and other forms of communication appropriate to the social and/or biophysical sciences) qualitative or quantitative data relevant to pressing questions concerning human society and/or the state of our planet.	…provide an opportunity for students to develop and test hypotheses regarding trends in deforestation and its impacts, how forest regeneration varies geographically, and how alternative approaches to tropical conservation will influence climate change.	… allowing students to gather and analyze socioeconomic data, along with data on forest cover and species composition, to test hypotheses about geographic variation in deforestation and its impacts. Students will communicate the results and broader societal implications of their analyses in writing and other formats.
Biological science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the life sciences.	Analyze critically the role social and/or the biophysical sciences play in the lives of individuals and societies and the role they might play in students' undergraduate degree programs.	…show how ecologists and evolutionary biologists develop hypotheses to test fundamental concepts and theories, use experiments and other methods to gather data to test these hypotheses, and interpret analyses of these data to draw conclusions and formulate new hypotheses.	…reading and discussing scientific articles with an emphasis on identifying the questions and considering what alternative methods could have been used to address them. Including papers on topics such as the relationship between rain forests and climate change or how consumer choices influence the sustainability of tropical forests and products. It will also allow them to also consider how tropical biologists and the results of their research can influence decisions made by governments and other levels of society, which has implications for them regardless of their chosen field of study.
	Explore or directly reference social and/or biophysical science resources outside the classroom and explain how engagement with those resources complements classroom work.	NA	…analyzing biological data, visiting the FLMNH butterfly rainforest, documenting the myriad rain forest products they use daily, and documenting the depiction of rain forests in movies, TV programs, and other popular media. This engagement will complement classroom discussions of particularly challenging concepts and emphasize that they actually interact daily with geographically distant rain forests.

Table 2: **Student Learning Objectives: International Objectives (for N co-designation)**

International Objectives	**This Course's Objectives (This course will. . . .)**	**Objectives will be Accomplished By:**
International courses promote the development of students' global and intercultural awareness.	… promote student awareness of a globally widespread and critical ecosystem, as well as intercultural differences in history and human-nature interactions and how they shape perspectives on rain forests and their conservation.	Teaching the local and regional services provided by tropical forests, how these vary geographically, and some of the cultural factors responsible for these differences.
Students examine the cultural, economic, geographic, historical, political, and/or social experiences and processes that characterize the contemporary world, and thereby comprehend the trends, challenges, and opportunities that affect communities around the world.	…explore the cultural, economic, and historical experiences of people in rain forest countries, how this compares with our preconceived notions of the same, and the consequences of this disparity for our understanding of rain forests and their conservation.	…considering the different and evolving ways in which rainforests and the people in tropical countries have been depicted in movies and TV to audiences based in the US/Global North;
Students analyze and reflect on the ways in which cultural, economic, political, and/or social systems and beliefs mediate their own and other people's understanding of an increasingly connected world.	…guide students though reflection on the feedbacks between a) decisions made by US consumers, governments, and private sector b) the status and biodiversity of rain forests, and c) the global climate and economy	…documenting the ubiquity of tropical forest products in their daily lives and reflecting on the global commodity chains making this possible and the consequences of consumer behavior for forest conservation and socioeconomic sustainability.

Table 3: **Student Learning Outcomes (SLOs): GenEd Primary Area and Quest**

Biological Sciences SLOs:	**Quest 2 SLOs:**	**This Course's SLOs:**	**Assessment:**
Students will be able to…	Students will be able to…	Students will be able to…	Student competencies will be assessed through…
Identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method; the major scientific discoveries and the impacts on society and the environment; and the relevant processes that govern biological and physical systems.	Identify, describe, and explain the cross-disciplinary dimensions of a pressing societal issue or challenge as represented by the social sciences and/or biophysical sciences incorporated into the course.	Identify, describe, and explain the patterns of rain forest biodiversity at multiple spatial scales, the evolutionary and ecological mechanisms underlying the evolution and maintenance of this biodiversity, historical and geographical variation in how humans use and alter rain forests, and the social, economic, and biological consequences of these activities.	Class-based exercises and activities, summaries and interpretations of scientific papers.
Formulate empirically-testable hypotheses derived from the study of physical processes or living things; apply logical reasoning skills effectively through scientific criticism and argument; and apply techniques of discovery and critical thinking effectively to solve scientific problems and to evaluate outcomes.	Critically analyze quantitative or qualitative data appropriate for informing an approach, policy, or praxis that addresses some dimension of an important societal issue or challenge.	Gather, Analyze, and Interpret multidisciplinary data to document geographic variation in deforestation and test hypotheses and test hypotheses regarding the underlying socioeconomic drivers and biological consequences.	Class-based exercises and activities in wihc they are required to Formulate empirically-testable hypotheses and evaluate them with data the gather and analyze.
Communicate scientific knowledge, thoughts, and reasoning clearly and effectively.	Develop and present, in terms accessible to an educated public, clear and effective responses to proposed approaches, policies, or practices that address important societal issues or challenges.	Develop and communicate materials describing the value of rain forests and their biodiversity for local university students and concrete actions individuals can take to promote their sustainability.	Summaries of scientific papers and discussions of the results and implications, presentations of final projects
	Connect course content with critical reflection on their intellectual, personal, and professional development at UF and beyond.	Reflect on course content and connect on how the results of biological research and the issues they have studied relate to their personal values and professional ambitions, and how this will influence their choices and behaviors at UF and beyond.	Personal reflections on their use of and dependence on tropical biodiversity and the actions they can take as citizens and consumers to promote forest conservation.

Table 4: **Secondary Student Learning Outcomes (SLOs): International Student Learning Outcomes (for N co-designation)**

Competency	**International SLOs…**	**Course SLOs**	**Assessment**
	Students will be able to…	Students will be able to…	Student competencies will be assessed through…
Content	Identify, describe, and explain the historical, cultural, economic, political, and/or social experiences and processes that characterize the contemporary world.	Identify, describe, and explain the historical, cultural, economic, and political factors that have shaped our scientific understanding of rain forests, the drivers of forest loss, and proposed mechanisms for their conservation.	Movie review assignments exploring how rainforests are framed for the audience, summaries of the results of scientific papers, in-class exercises on patterns of biodiversity and deforestation rates, active learning exercises on rain forest products and consumer behavior, and a final exam.
Critical Thinking	Analyze and reflect on the ways in which cultural, economic, political, and/or social systems and beliefs mediate understandings of an increasingly connected contemporary world.	Analyze and reflect on the how our cultural, economic, historical, and political beliefs have influenced our understanding of the relationship between and global consequences of our individual choices and the status of rain forests.	active learning exercises on rain forest products and consumer behavior, individual and group projects that highlight a threat to rain forests and propose concrete steps individuals can take to address them, and in-class exercises on the relationship between human migration, macroeconomic trends and deforestation.