

# The Future of Rain Forests

## IDS 2935 - Quest 2 - Fall 2021

### Professor Emilio M. Bruna

#### I. Course Information

##### Meeting Day, Time, & Location:

- **Tuesday:** Period 4 (10:40 AM - 11:30 AM) in AND101 **and**
- **Thursday:** Period 4-5 (10:40 AM - 12:35 PM) in WM0202
- *Note that the Tuesday and Thursday classes meet in different rooms*

##### Professor Bruna's Contact Information:

- **Office:** Tropical Ecology & Conservation Lab, 711 Newell Drive
- **Phone:** (352) 846-0634
- **email:** embruna@ufl.edu

##### Office Hours:

- **When:** Wednesday or Friday 10:30 am - 12 noon. *If you can't make one of these sessions, no problem! Just let me know and we will make an appointment*
- **What:** Here are some of the reasons to visit during office hours:
  - Introduce yourself and grab a free tea or espresso from the 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
  - (lots of other reasons)
- **Format:** You can come to office hours in person or via Zoom (link on class canvas page). You can [sign up for an Office Hours appointment in advance here](#). You don't have to sign up for a specific time - you're welcome to just show up during the office hours. Signing up simply guarantees a specific time slot so you don't have to wait in line.
- **Location:** Tropical Ecology & Conservation Lab, 711 Newell Dr. [map and directions](#)

##### GenEd Designations

- **Primary:** Biological Sciences
- **Secondary (if seeking):** International (N)
- **Writing:** No writing designation
- **A minimum grade of C is required for general education credit**

##### Course Description

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?

Students will explore these questions by reading and discussing a research studies, gathering and analyzing multidisciplinary data, interviewing people engaged in forest-related activities, and by reflecting on the consequences for rain forests of our choices as consumers, scholars, and community members. The course is taught in a non-traditional format: in-class sessions will be devoted to activities ranging from conversations with journalists, scientists, and conservation practitioners based in tropical countries to gathering and analyzing data on deforestation to reading and discussing scientific studies. There might be a field trip to a museum or supermarket. There might even be an occasional lecture. Instead of readings from a textbook, most weeks we will read a scientific study or some texts intended for a general audience (e.g., newspaper articles, chapters from memoir). The assignments are designed to maximize personal reflection and creativity...and yes, you can actually get credit for watching movies such as Predator, Rio, and Apocalypse Now.

### **Required & Recommended Course Materials**

1. **Required (purchase/rent):** Juniper, T. (2019). Rainforest: Dispatches from Earth's Most Vital Frontlines. Island Press. (456 pp). ISBN-13: 9781642830736 [approx. \$8 (used), \$14-18 (new), \$20 (electronic)].
2. **Recommended:** None

## **II. Graded Coursework**

<b>Assignment</b>	<b>Requirements</b>	<b>Due</b>	<b>Points</b>
In-Class Exercises	25 exercises x 20 pts each	in class	500
Movie Reviews (3 total)	Completed review form	30-Sep	250
Analytic Essay	Analytical essay (1000 wds)	21-Oct	250
Personal action to advance rain forest conservation	Reflective Essay (500-700 wds)	9-Dec	250
Awareness Campaign Materials	3 items + summary (500-700 wds)	9-Dec	250
<b>TOTAL</b>			<b>1500</b>

## **III. Semester Overview & Key Dates**

Week	Date	Topic	Assignment handed out or due
<b>WHY ARE WE FASCINATED BY TROPICAL RAIN FORESTS?</b>			
Week 1	24-Aug 26-Aug	Introductions Setting the stage: historical narratives	
Week 2	31-Aug 2-Sep	Rain forests in High & Popular Culture The Rain Forest in film & TV	Movie Reviews Handed Out
<b>THE ECOLOGY &amp; EVOLUTION OF TROPICAL RAIN FORESTS</b>			
Week 3	7-Sep 9-Sep	What is a Rain Forest? Patterns of Biodiversity	
Week 4	14-Sep 16-Sep	Coevolution and the origins of tropical biodiversity BUTTERFLY RAIN FOREST	
Week 5	21-Sep 23-Sep	Forest disturbance, dynamics, & the maintenance of diversity Humans as part of rain forests	
Week 6	28-Sep 30-Sep	Rain Forest Manipulation & the Paradox of Luxuriance Forest-Savanna Boundaries and Tipping Points	Movie Reviews Due
Week 7	5-Oct 7-Oct	Rain Forests: Fact vs. Fiction (BAD) RAIN FOREST MOVIE FEST 2021	
<b>THE DRIVERS AND IMPACTS OF DEFORESTATION</b>			
Week 8	12-Oct 14-Oct	Forest cover and forest loss I Forest cover and forest loss II	Essay Assignment Handed Out
Week 9	19-Oct 21-Oct	Mining, Timber Agriculture and Fire	Essay Assignment Due
Week 10	26-Oct 28-Oct	Climate change I Climate change II	PA & AC Assignments Handed Out
<b>THE FUTURE OF TROPICAL RAIN FORESTS</b>			
Week 11	2-Nov 4-Nov	Consumer choices DURIAN FEST 2021	
Week 12	9-Nov 11-Nov	International frameworks No class - holiday	
Week 13	16-Nov 18-Nov	Protected areas Forest restoration & regeneration	
Week 14	23-Nov 25-Nov	Project Work Day No class - holiday	
Week 15	30-Nov 2-Dec	Local Initiatives, Empowered Communities Philanthropy, NGOs, and Activism	
Week 16	7-Dec 9-Dec	Rain Forest Headlines What will we do?	Personal And Campaign Assignment Due
<b>Finals Week</b>			
	15-Dec	Optional take-home final due by 9:30 AM	

#### **IV. Weekly Reading (*to be completed before class*)**

**Note: The reading list for each session is subject to change.** Please refer to the course Canvas page for the most up-to-date reading assignments ### 24-Aug Introductions \* None

##### **26-Aug Setting the stage: historical narratives**

- None

##### **31-Aug Rain forests in High & Popular Culture**

- Excerpts from Poetry and Fiction

##### **2-Sep The Rain Forest in film & TV**

- Jolly 2021. *The Conversation*.

##### **7-Sep What is a Rain Forest?**

- Juniper Ch. 1-2 (pp 15-54)

##### **9-Sep Patterns of Biodiversity**

- None

##### **14-Sep Coevolution and the origins of tropical biodiversity**

- Juniper Ch. 3-4 (pp 55-102)

##### **16-Sep BUTTERFLY RAIN FOREST**

- None

##### **21-Sep Forest disturbance, dynamics, & the maintenance of diversity**

- None

##### **23-Sep Humans as part of rain forests**

- Juniper Ch. 5 (pp 106-124)

##### **28-Sep Rain Forest Manipulation & the Paradox of Luxuriance**

- None

##### **30-Sep Forest-Savanna Boundaries and Tipping Points**

- Staver, Carla A. et al. 2011. The global extent and determinants of savanna and forest as alternative biome states. *Science* 334(6053): 230-232. [link to the article](#)

##### **5-Oct Rain Forests: Fact vs. Fiction**

- None

##### **7-Oct (BAD) RAIN FOREST MOVIE FEST 2021**

- None

**12-Oct Forest cover and forest loss I**

- Juniper Ch. 6 (pp 125-37)
- Nolen, Stephanie (Reporting) with Aaron Vincent Elkaim (Photographs). 2018. Inside the Amazon's Deforestation Crisis. The Globe and Mail. [link to the article](#). *Read this on a big screen - it's worth it.*

**14-Oct Forest cover and forest loss II**

- Juniper Ch. 12-13 (pp 220-253)

**19-Oct Mining, Timber**

- None

**21-Oct Agriculture and Fire**

- Zu Ermgassen, EKHJ et al. 2020. The origin, supply chain, and deforestation risk of Brazil's beef exports. *PNAS* 117(50):31770-31779. [link to the article](#)

**26-Oct Climate change I**

- Juniper Ch. 7 (pp 138-153)

**28-Oct Climate change II**

- None

**2-Nov Consumer choices**

- Juniper Ch. 15-17 (pp 278-330)

**4-Nov DURIAN FEST 2021**

- Lawal, Shola. 2020. Our Endless Appetite For Chocolate Has Bitter Environmental Consequences. *Huffington Post*. [link to the article](#)

**9-Nov International frameworks**

- Juniper Ch. 19-21 (pp 345-379)

**11-Nov No class - holiday**

- None

**16-Nov Protected areas**

- Juniper Ch. 18 (pp. 331-342)

**18-Nov Forest restoration & regeneration**

- Juniper, Ch. 20-22 (pp 355-371)

**23-Nov Project Work Day**

- None

**25-Nov No class - holiday**

- None

**30-Nov Local Initiatives, Empowered Communities**

- Juniper Ch 10 (pp 182-203)
- Juniper Ch 14 (pp 254-274)

**2-Dec Philanthropy, NGOs, and Activism**

- Juniper Ch 8 (pp 154-170)

**7-Dec Rain Forest Headlines**

- Juniper Ch 22 (pp 380-398)

**9-Dec What will we do?**

- None

## V. Grading

**Statement on 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, most of the required assignments are completed in class. They are designed so that one could complete them independently, but by doing them in class you will benefit from working collaboratively with the other students.

**Participation:** Consistent informed, thoughtful, and considerate class participation is encouraged. If you have personal issues that prohibit you from joining freely in class discussion, e.g., shyness, language barriers, etc., that is no problem! Let me know me as soon as possible and we will discuss alternative modes of participation.

**If you need to miss an upcoming class for whatever reason (conference, illness, family emergency, etc.), 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 or supporting friends and family in need than struggle to turn in assignments.

### 4. Grading Scale

- **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/>

## VI. Quest Learning Experiences

### Experiential Learning Component

This course has multiple experiential learning activities. Students will be taking a field trip to the FLMNH Butterfly Rain Forest to investigate plant form and function and plant-animal interactions. Students will also surveying tropical products in their homes and pantries. Finally, they will be gathering and analyzing data on deforestation, biodiversity in different tropical rain forest regions, and for forest regeneration influences carbon stocks and climate change scenarios.

### Details of Self-Reflection Component

Students will also have multiple opportunities for self-reflection throughout the course. In addition to reflection on their goals and expectations for the class, they will consider the (almost certainly under-appreciated) ubiquity of products derived from tropical plants and animals in their daily lives. Finally, they will have the opportunity to consider what actions they can take as individuals to advance rain forest conservation and the well-being of forest-dependent people.

## VII. Required Policies

### Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### 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 any questions or concerns, please consult with the instructor or TAs in this class.

**Counseling and Wellness Center**

- U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto: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](#).

**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.

**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

### **VIII. General Education and Quest Objectives & SLOs**

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

<b>Biological Sciences Objectives</b>	<b>Quest 2 Objectives</b>	<b>Course Objectives (This course will...)</b>	<b>Objectives will be Accomplished By...</b>
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)**

<b>International Objectives</b>	<b>This Course's Objectives (This course will....)</b>	<b>Objectives will be Accomplished By:</b>
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 through 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**

<b>Biological Sciences SLOs:</b>	<b>Quest 2 SLOs:</b>	<b>This Course's SLOs:</b>	<b>Assessment:</b>
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 which they are required to formulate empirically-testable hypotheses and evaluate them with data gathered and analyzed.
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)**

<b>Competency</b>	<b>International SLOs...</b>	<b>Course SLOs</b>	<b>Assessment</b>
	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.