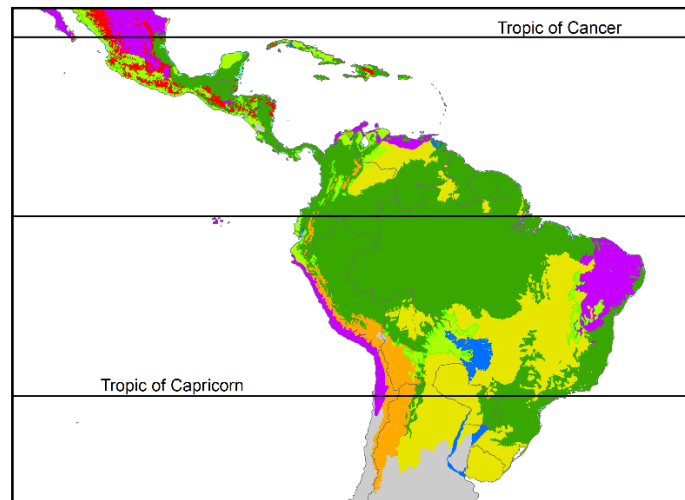


GEOG 294: NEOTROPICAL LANDSCAPES



Term: Fall 2021

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COURSE DESCRIPTION

Tropical ecosystems provide a range of services—both locally and globally—-including water sources, climate mitigation and biodiversity conservation. They are also home to various people groups and support the livelihood of local and global human populations. This course provides students a basic understanding of the most important biophysical and social characteristics of the dominant landscapes that compose the New World tropics. Among others, these include the tropical rain forests of the Amazon basin, the montane forests and páramos of the Andes, and the tropical dry forests of the Pacific coast of South America. For each of these environments, we will learn the key biogeographical and ecological processes that make these ecosystems function the way they do. We will also study the peoples that live in these environments—indigenous communities, afro-descendants, and mestizo populations—and how they interact with their environment. Finally, we will cover some of the threats that these places face, including deforestation, afforestation, and climate change.

LEARNING OUTCOMES

- Describe the major biomes of the Neotropics in terms of basic ecological characteristics that make them different from each other.
- Explain the peoples and cultures that live in these places and how they relate with nature.

- Demonstrate a basic understanding of the major threats that affect these places and what is being done (or not done) to protect them.
- Overall, develop an interdisciplinary approach to look at / analyze landscapes that incorporate environmental (biophysical) and social components.

PREREQUISITES

A lot of enthusiasm!

MEETING TIMES AND OFFICE HOURS

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09:40-10:40					
10:40-12:00					
1:00 – 3:00					

	Class times.
	Office hours.

TEXTBOOK

This class has no required textbooks. The following books are good sources of information for the topics that will be covered (all available in my office). Copies of chapters will be provided for some days. Additional sources (e.g. peer-reviewed papers, news articles, podcasts) will be provided as needed and made available in Moodle.

Kricher, J. C. (2011). *Tropical ecology*. Princeton University Press.

Kricher, J. C. (2017). *The new neotropical companion*. Princeton University Press.

Kronik, J., & Verner, D. (2010). *Indigenous peoples and climate change in Latin America and the Caribbean*. World Bank.

Terborgh, J. (2004). *Requiem for nature*. Island Press.

Vandermeer, J. H., & Perfecto, I. (2005). *Breakfast of biodiversity: The political ecology of rain forest destruction* (2nd ed). Food First Books ; Distributed by Client Distribution Services.

Wilson, D. J. (1999). *Indigenous South Americans of the past and present: An ecological perspective*. Westview Press.

COURSE DETAILS

Structure

While the Covid-19 emergency forced us to have more than a year of on-line instruction, it also offered an opportunity to explore different approaches for engaging with class content and facilitating the student learning experience. Building on this experience, I will adopt various teaching approaches during this semester. Some classes will follow a “flipped-classroom model” , where students study the material prior to class and come prepared to explore topics in greater depth. Other classes will follow a “blended-learning model” with some material provided in advanced and partially accompanied by lectures in class. Other classes will follow a more traditional lecture-based form of content delivery.

Resources

All course material, including lecture slides, readings and book chapters, will be made available on Moodle. We will use Moodle to complete and turn in any assignment that is completed during class time. Depending on the circumstances, late assignments will be accepted with a 20% drop on the final grade for each 24-hour period that it is late.

I will hold regular office hours to discuss questions, issues or concerns about the class in detail. If your schedule conflicts with posted office hours, we can schedule a different meeting time.

Outside of class and office hours, email is the best way to contact me. I respond to email as soon as possible, but I mostly respond during work hours (8:00 am to 4:00 pm on weekdays).

Class Activities

Almost every class will have an associated class activity including exit tickets, opening questions, previous class summaries, paper discussions, etc. All these activities will serve to review class content continuously, increase and promote class participation, build a community together and maintain a sense of connection and commitment to one another. Because these activities will happen almost daily, they will also serve to account for attendance.

I recognize that there are unavoidable circumstances that sometimes make it impossible for you to attend class and therefore participate in every single class activity. To accommodate these events, the two lowest grades of class activities will be dropped and not considered in the final computation of your Class Activities grade.

Quizzes

After each major unit (i.e. a biome), we will have a quiz that will include only the concepts of that specific unit. Quizzes will typically be short and consist of written responses. See the detailed weekly schedule to have a grasp of the units of study (i.e. biomes) that will be studied.

Exams

Two cumulative exams will be part of this class. One will be scheduled around the middle of the semester and another one at the end of the semester. The exams will consist of short answers, short essays, interpretation and applied problem-solving questions.

Podcast

You will do a podcast in this class, which will account for a large percentage of your final grade. You will pick the general topic for your podcast based on the various landscapes of the Neotropics studied in class, but you will narrow it down to a specific case study--a region, country, national park(s), biosphere reserve--in other words, a "smaller landscape" than the ones discussed in class that will allow us to explore the topics learned in more detail. We will work during the course of the semester to define your topic and work on this assignment and we will be supported by the Digital Liberal Arts (DLA) center of Macalester.

Here are some sources you will likely use during the entire semester that you should start exploring as soon as you can. How to [Listen to a Podcast for Class](#) provides some good tips on how to approach podcasts as a source of information in class. We'll have at least one podcast as bibliographic material, so be prepared!

[Mac Digital](#) is the general webpage of the Digital Liberal Arts (DLA) at Macalester, and [Podcasting](#) talks specifically about podcasts and lists all the resources that you'll have available at Macalester to do your podcast.

We will also do a short exercise to help prepare you to do your podcast. While probably time consuming, my intention is for this activity to be a fun learning experience.

GRADING

Assignment	Points
Class Activities	30%
Quizzes	20%
Exams	20%
Podcast	30%

Scale Letter	Range
A	93.0% to 100 %
A-	90.0% to < 93.0 %
B+	87.0% to < 90.0 %
B	83.0% to < 87.0 %
B-	80.0% to < 83.0 %
C+	77.0% to < 80.0 %
C	73.0% to < 77.0 %
C-	70.0% to < 73.0 %
D+	67.0% to < 70.0 %
D	63.0% to < 67.0 %
D-	60.0% to < 63.0 %
F	0.0% to < 60.0 %

COURSE POLICIES AND SUPPORT

Attendance

Attendance plays an essential role in learning; you are warmly invited, encouraged, and expected to attend all class meetings. As described above, attendance will be factored in class activities. If you will not be in class for any reason, it is your responsibility to inform me in advance via email at xharocar@macalester.edu. It is also your responsibility to make up work you missed in your absence. Students with disabilities should discuss their accommodations with me early in the course to work out a plan that aligns with maintaining course expectations and learning goals.

Students may wish to take part in religious observances that occur during this semester. If you have a religious observance/practice that conflicts with your participation in the course, please contact me before the end of the first week of the module to discuss appropriate accommodations.

Diversity

I acknowledge that at least some of the scientific content of this class has been historically built on a small subset of privileged voices. Therefore there may be both overt and covert biases in the material due to the lens with which it was written. This is particularly the case of those readings that deal with people as a subject of study, but also of those that deal with the environment. Integrating a diverse set of experiences is important for a more comprehensive understanding of science, and I am working continuously to enhance the diversity of bibliographic sources used in this class. In addition to course content, I am also committed to creating a learning environment that supports a diversity of thoughts, perspectives and experiences, and to honor your identities including race, gender, class, nationality, religion, ethnicity, sexuality, etc. Please contact me (in person or electronically) or submit anonymous feedback if you have any suggestions to improve the quality of the course materials and enhance diversity and inclusion.

Disabilities

I am committed to ensuring access to course content for all students, including those with disabilities. If you are encountering barriers to your learning that we can mitigate, please bring them to my attention. I will be happy to work with you to ensure your success in the class. Reasonable accommodations are available for students with documented disabilities. Contact the Disability Services office by emailing disabilityservices@macalester.edu or calling 651-696-6874 to schedule an appointment to discuss your individual needs.

Personalized tutoring, academic support and study skills are available at the Macalester Academic Excellence (MAX) at: <https://www.macalester.edu/max/#/0>. These resources are there to help you and I encourage you to make good use of them.

Well-Being

Here at Macalester, you are encouraged to make your well-being a priority throughout this semester and your career here. Investing time into taking care of yourself will help you engage more fully in your academic experience. Remember that beyond being a student, you are a human being carrying your own experiences, thoughts, emotions, and identities with you. It is important to acknowledge any stressors you may be facing, which can be mental, emotional, physical, financial, etc., and how they can have an academic impact. I encourage you to remember that you have a body with needs. In the classroom, eat when you are hungry, drink water, use the restroom, and step out if you are upset and need a break. Please do what is necessary so long as it does not impede your or others' ability to be mentally and emotionally present in the course. Outside of the classroom, sleep, moving your body, and connecting with others can be strategies to help you be resilient at Macalester. If you are having difficulties maintaining your well-being, please don't hesitate to contact me and/or find support from other resources on the following page.

Title IX

Macalester is committed to providing a safe and open learning and living environment for all students, staff, and faculty. Any community member experiencing sexual harassment, sexual violence, relationship violence, or stalking, is encouraged to seek help and support. Please be aware that as a faculty member, I need to report disclosure about sexual harassment, sexual misconduct, relationship violence, and stalking to the Title IX Office. The purpose of this report is to ensure that anyone experiencing harm receives the resources and support they need. I will keep this information private and it will not be shared beyond this required report. You can contact Macalester's Title IX Coordinator directly at titleixordinator@macalester.edu.

Academic Integrity

Students are expected to complete and turn in their own work and to follow established academic practices regarding proper use and citation of materials and ideas that are not their own. Engaging in cheating or plagiarism will result in a failing grade in this class. More information is available about Macalester's academic integrity at:

<https://www.macalester.edu/academicprograms/academicpolicies/academicintegrity/>

DETAILED WEEKLY SCHEDULE

Disclaimer: This schedule represents my current plan and objectives. We will certainly cover the major topics detailed in this schedule. However, details such as readings and specific dates will be defined and adjusted as we progress in the semester with the goal of enhancing your learning experience. Details might be revised and changed also to adjust to current conditions including, but not limited to, Covid-19.

Week 1: Welcome & Introduction

September 1 to 3 (two sessions)

Learning outcome: This week we will describe what this class is about and start learning basic concepts that are the basis for the entire semester. Specifically, we'll ask ourselves what's a landscape?

This week's reading:

Society, N. G. (2011, January 21). Landscape. National Geographic Society.

<http://www.nationalgeographic.org/encyclopedia/landscape/>

Week 2: Introduction & Basic Concepts

September 6 to 10 (two sessions; Monday 6 Labor Day break)

Learning outcome: We continue to learn basic concepts. Knowing what a landscape is, we now switch our focus to understanding what are the Neotropics.

This week's readings:

Olson, D. M., Dinerstein, E., Wikramanayake, E. D., Burgess, N. D., Powell, G. V. N., Underwood, E. C., D'Amico, J. A., Itoua, I., Strand, H. E., Morrison, J. C., Loucks, C. J., Allnutt, T. F., Ricketts, T. H., Kura, Y., Lamoreux, J. F., Wettengel, W. W., Hedao, P., & Kassem, K. R. (2001). Terrestrial Ecoregions of the World: A New Map of Life on Earth. *BioScience*, 51(11), 933.

[https://doi.org/10.1641/0006-3568\(2001\)051\[0933:TEOTWA\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2).

Kricher, J. C. (2017). Chapter I: Welcome to the Torrid Zone. In: *The new neotropical companion*. Princeton University Press.

Friday September 10, we will have a visit to the Digital Liberal Arts (DLA) center of Macalester.

Week 3: Basic Concepts & Moist Broadleaf Forests I

September 13 to 17

Learning outcome: Let's start with the biggest! During the following weeks we'll study moist broadleaf tropical forests, which include iconic ecoregions such as the Amazon and are among the few places in the world where uncontacted indigenous communities still live. We'll start with an environmental focus.

This week's readings:

Kricher, J. C. (2017). Chapter II: Why is it hot, humid, and rainy in the Tropics. In: *The new neotropical companion*. Princeton University Press

Antonelli, A., & Sanmartín, I. (2011). Why are there so many plant species in the Neotropics? *TAXON*, 60(2), 403–414. <https://doi.org/10.1002/tax.602010>

Butler, R. A. (2020). The Amazon Rainforest. Mongabay. Retrieved from <https://rainforests.mongabay.com/amazon/>

Brazil Institute Podcast, P. (2021). Deforestation and Drought in Brazil. Retrieved from <https://player.fm/series/brazil-institute-podcast/deforestation-and-drought-in-brazil>

Week 4: Moist Broadleaf Forests II

September 20 to 24

Learning outcome: Other ecoregions are also part of this biome, including the Atlantic Forest and others. We'll study them this week and we'll also start learning who lives in these regions.

This week's readings:

de Rezende, C. L., Uezu, A., Scarano, F. R., & Araujo, D. S. D. (2015). Atlantic Forest spontaneous regeneration at landscape scale. *Biodiversity and Conservation*, 24(9), 2255–2272.

<https://doi.org/10.1007/s10531-015-0980-y>

Fagua, J. C., & Ramsey, R. D. (2019). Geospatial modeling of land cover change in the Chocó-Darien global ecoregion of South America; One of most biodiverse and rainy areas in the world. *PLOS ONE*, 14(2), e0211324. <https://doi.org/10.1371/journal.pone.0211324>

Week 5: Moist Broadleaf Forests III

September 27 to October 1

Learning outcome: We'll close learning about the biggest biome of the Neotropics with a detailed review about the peoples from Amazonia (not the ecoregion but the geographic region of the Amazon).

This week's readings:

Wilson, D. J. (1999). Chapter VI: Amazonian Villages and Chiefdoms. In: *Indigenous South Americans of the past and present: An ecological perspective*. Westview Press.

Povos Indígenas no Brasil. (2018). *Mebêngôkre (Kayapó)—Indigenous Peoples in Brazil*.

Retrieved August 26, 2021, from

[https://pib.socioambiental.org/en/Povo:Meb%C3%AAng%C3%B4kre_\(Kayap%C3%B3\)](https://pib.socioambiental.org/en/Povo:Meb%C3%AAng%C3%B4kre_(Kayap%C3%B3))

First Quiz

Week 6: Moist Dry Broadleaf Forests & Cerrado Woodlands and Savannas

October 4 to 8

Learning outcome: The tropics can be dry too and, in fact, dry ecoregions are among the most threatened due to human activities. We'll study these landscapes this week.

This week's readings:

Kricher, J. C. (2017). Chapter XIV: Don't Miss the Savannas and Dry Forests. In: *The new neotropical companion*. Princeton University Press.

Mongabay Newscast. (2018). Exploring Brazil's biodiverse Cerrado region and the impacts of agriculture. Retrieved from <https://mongabay.libsyn.com/exploring-brazils-biodiverse-cerrado-region-and-the-impacts-of-agriculture>

WWF. (2021). Tropical and subtropical dry broadleaf forests | Biomes. World Wildlife Fund.
Retrieved from <https://www.worldwildlife.org/biomes/tropical-and-subtropical-dry-broadleaf-forests>

Second Quiz

Week 7: Montane Forests, Paramo and Puna I

October 11 to 15

Learning outcome: Elevation has a significant impact in many tropical ecosystems producing magnificent landscapes that we'll study this week.

This week's reading:

Kricher, J. C. (2017). Chapter XIII: Scaling the Andes. In: The new neotropical companion. Princeton University Press.

Wilson, D. J. (1999). Chapter VII: Contemporary Central Andean Villages. In: Indigenous South Americans of the past and present: An ecological perspective. Westview Press.

Friday October 15, we will have a session with folks from the DLA to start learning how to do a podcast. You should have, at least, a topic ready for this session. If you have a small script even better.

Week 8: Montane Forests, Paramo and Puna II

October 18 to 22 (two sessions; Friday 22 Fall Break)

Learning outcome: We close learning about mountain landscapes in the Neotropics this week.

This week's readings:

No readings, study for the exam!

EXAM I

Week 9: Mangroves

October 25 to 29

Learning outcome: We will learn about these unique coastal areas, the mangroves.

This week's readings:

Lacerda, L. D., Borges, R., & Ferreira, A. C. (2019). Neotropical mangroves: Conservation and sustainable use in a scenario of global climate change. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 29(8), 1347–1364. <https://doi.org/10.1002/aqc.3119>

Growing Up in Ecuador's Mystical Mangroves. (2015, January 30). Photography.

<https://www.nationalgeographic.com/photography/article/growing-up-in-ecuadors-mystical-mangroves>

The Blue Crab, Guardian of the Mangroves of Esmeraldas. (2019, September 24). Slow Food International. <https://www.slowfood.com/the-blue-crab-guardian-of-the-mangroves-of-esmeraldas/>

Fourth Quiz

Week 10: Desert & Wetlands and Flooded Savannas

November 1 to 5

Learning outcome: Did you know that the driest place on Earth is in the tropics? This week, we'll learn about deserts, and then we'll go to other extreme, wetlands.

This week's readings:

South American Coastal Deserts (NT8). (n.d.). One Earth. Retrieved August 23, 2021, from <https://www.oneearth.org/bioregions/south-american-coastal-deserts-nt8/>

ADDITIONAL READINGS TBD

Week 11: Wetlands and Flooded Savannas

November 8 to 12

Learning outcome:

This week's readings:

READINGS TBD

Fifth Quiz

Presentation and discussion about your podcasts

Friday November 10, we will have a second session with the DLA folks, specifically to learn how to edit your podcast.

Week 12: The Future of the Neotropics

November 15 to 19

Learning outcome: What has been the impact of human activities in the Neotropics? We'll start with a biophysical exploration this week.

This week's readings:

Kricher, J. C. (2017). Chapter XVIII: The Future of the Neotropics. In: The new neotropical companion. Princeton University Press.

Cuesta, F., Llambí, L. D., Huggel, C., Drenkhan, F., Gosling, W. D., Muriel, P., Jaramillo, R., & Tovar, C. (2019). New land in the Neotropics: A review of biotic community, ecosystem, and landscape transformations in the face of climate and glacier change. *Regional Environmental Change*, 19(6), 1623–1642. <https://doi.org/10.1007/s10113-019-01499-3>

Wassenaar, T., Gerber, P., Verburg, P. H., Rosales, M., Ibrahim, M., & Steinfeld, H. (2007). Projecting land use changes in the Neotropics: The geography of pasture expansion into forest. *Global Environmental Change*, 17(1), 86–104. <https://doi.org/10.1016/j.gloenvcha.2006.03.007>

Week 13: Climate Change in the Neotropics Part I

November 22 to 26 (one session; Wednesday 24 and Friday 16 Thanksgiving break)

Learning outcome: Climate change will alter the environment and the people. This week we'll start learning about the impacts of climate change on indigenous peoples.

This week's readings:

Kronik, J., & Verner, D. (2010). Chapter 2: Indigenous Peoples of the Amazon. In: Indigenous peoples and climate change in Latin America and the Caribbean. World Bank.

Kronik, J., & Verner, D. (2010). Chapter 3: Indigenous Peoples of the Andes. In: Indigenous peoples and climate change in Latin America and the Caribbean. World Bank.

Kronik, J., & Verner, D. (2010). Chapter 4: Indigenous Peoples of the Caribbean and Central America. In: Indigenous peoples and climate change in Latin America and the Caribbean. World Bank.

Week 14: Climate Change in the Neotropics Part II & Wrap-up

November 29 to December 3

Learning outcome: We' ll continue learning about climate change and indigenous communities and close the semester with some final reflections.

This week readings:

Kronik, J., & Verner, D. (2010). Chapter 5: Indigenous Peoples and Climate Change Across the Region. In: Indigenous peoples and climate change in Latin America and the Caribbean. World Bank.

EXAM II

Week 15: Podcast Presentation & Discussion

December 6 to 10

Learning outcome: Have you ever seen (or attended) an independent movie festival where after seeing a film, you have a discussion with the director? This will be similar! We will listen to each other podcasts and then have a "light" discussion about each of them, where you will have an opportunity to explain more about your project and engage with your audience.