CIEE Monteverde, Costa Rica

Course title:	Humans in the Tropics
Course code:	ECOL 3003 MVCR
Programs offering course:	Tropical Ecology and Conservation
Language of instruction:	English
U.S. semester credits:	2
Contact hours:	60
Term:	Fall 2020

Course Description

In the course Humans in the Tropics, we focus on the environmental impacts of major, contemporary trends or activities involved in the transformation of tropical landscapes. These include urbanization, food production, energy generation, and tourism. We explore them in the developing nation Costa Rica, internationally renowned for its environmental protection, and therefore may represent a ?best case scenario?. Students will learn about innovative ways to mitigate or minimize human footprints on tropical ecosystems and biodiversity but will also learn about the complexity and challenges of environmental protection faced by developing nations. Through lectures, readings, field excursions, interviews, discussions, and essay-writing, we will explore the following: The environmental impacts of urbanization, food production, energy generation forestry and tourism for Costa Rica, Principal drivers behind the trends, Initiatives by the private and public sectors to eliminate or mitigate negative human impacts on ecosystems.

Learning Objectives

By completing this course, students will:

1. Have enhanced understanding of how people use different ecosystems in the Tropics;
2. Be able to contextualize this behavior into larger systems intersecting with economics, sociology, anthropology and environmental science.
3. Will understand how environmental problems are generated through food production, settlement, commerce and industry.
4. Explore innovative approaches that are trying to reduce, mitigate or compensate this impact and approach sustainability.
5. Propose new approaches or solutions to the pressing environmental issues caused by humans
6. Learning Goals

Upon completion of the course, students will be able to:

1. Recount, from firsthand experiences and observations, the conversion of ecosystems by different productive activities of humans.
2. Connect how these activities have affected, and continue to affect, the natural environment.
3. Give concrete examples of how institutional changes are trying to reverse negative human impacts on the natural environment.
4. Explain examples of changes at the personal choice level that can help to reverse negative human impacts on the natural environment.

Course Prerequisites

None

Methods of Instruction

Experiential learning will be encouraged through the combination of excursions, field activities, and guest talks with key stakeholders. Students will attend lectures, read relevant literature (peer-reviewed publications and grey literature), and participate in group discussions on topics related to the theme. Collectively, these learning experiences will be drawn upon when students individually write essays (position papers) on each of the five major themes: urbanization, energy production, tourism, ecosystem services and food production.\

N.B. Course schedule is subject to change due to study tours, excursions, or local holidays. Final schedules will be included in the final syllabus provided to students on site.

Assessment and Final Grade

.	Participation	%
1.	Quizzes	40%
2.	Essays	30%
3.	Oral presentation	10%
4.	Final exam	10%
	TOTAL	90%

Course Requirements

Participation

Students are expected to attend all lectures and activities, hand in all assignments, as well as ask questions and participate in discussions and field visits. Only students who are active participants and fully engaged with the subject will receive full credit.

Quizzes

There will be a total of five quizzes, with a format that includes short answers (a few words) and long answers (a few sentences or a paragraph). The quizzes will cover content and concepts from material covered in lectures, readings, guest talks and from field visits.

Essays

Students will write a total of five essays, assigned at the end of each of the five classes. The essay will address a question related to the specific theme of the day and be expressed as an opinion, justified with facts and figures drawn from lectures, readings, and field visits for the specific theme. The specific requirements are listed in the Grading Rubric at the end of this document.

Oral presentation

Students will work in small groups (2-3) to research the course themes of urbanization, tourism, energy, forestry, and environmental conservation in Costa Rica. The group will focus on specific challenges that emerge at the intersection of the themes. (For instance, the challenge of providing renewable energy but at the expense of exploiting geothermal power in national parks.) They will make a presentation (oral) of the conflict/challenge and then propose realistic ways to go forward in a sustainable way

Final exam

Students will write a final, comprehensive essay on a broad topic that is assigned on the final field day. The essay will address a question related to a broad and overarching theme for the course Humans in the Tropics. The essay will be written as an opinion piece, justified with facts and figures drawn from lectures, readings, and field visits.

Weekly Schedule

Week 1

Class — Orientation

Topic: Impact of Population, Consumption, and Urbanization:

Lecture: Environmental impacts of population growth, consumption, and economic wealth; emphasis to developing countries.

Activities:

1. Because this will be your first encounter with Costa Rica, you will explore the capital city and experience aspects of urbanization directly for a concluding discussion.
2. You will estimate your own ecological footprints and conduct surveys to estimate the ecological footprints of urban residents in Costa Rica to gain insight into how impacts vary across different demographic groups.
3. Learn about the Urban Challenges in Costa Rica from a local organization working in Urban Sustainability.

Readings:

Fang et al. (2018)

Galli et al. (2014)

Assessments:

Essay 1

Quiz 1

Week 2

Class — No classes for ECOL 3003 MVCR

Class — Impact of Food Production

Lecture: how food production impacts people and the environment. The food we eat has impacts on the environment and all individuals invested in biodiversity and ecosystem conservation should understand them. Meat, dairy and egg production systems are sources of employment and supply animal protein for human diets. But they are associated with negative impacts on the environment, public health, and animal welfare. The vegetarian part of our diet is not exempt of these negative

impacts. Coffee and pineapple are important sources of revenue for Costa Rica but leave their own ecological footprints.

Activities:

1. You will visit livestock and coffee farms and try their products.
2. Learn about the life cycle of two productions (coffee and livestock)
3. Learn about innovative practices to increase sustainability.

Readings:

Laurance et al. (2013)

Tayleur et al. (2017)

Assessments:

Essay 2

Quiz 2

Week 4

Class — No class for ECOL 3003 MVCR

Week 5

Class — Impact of Energy Production

Lecture: How (even renewable) energy impacts the environment. Energy has become a crucial element for sustainable development and wellbeing of any country in modern era. In Costa Rica, renewable energies are important in energy security, they supply alternatives to fossil fuels, and can lower greenhouse gas emissions. But renewables also come with a host of environmental impacts.

Activities:

1. You will learn about renewable energies currently used in Costa Rica
2. You will take a day trip to learn about the sustainability of the main source of energy production in this country (hydropower) and new alternatives such as wind.
3. Learn about the Government de-carbonization goal through a local organization.

Week 6

Class — No class for ECOL 3003 MVCR

Week 7

Class — How to interpret Costa Rica's "green energy"

Readings:

Anderson et al. (2006)

Media:

“Damnation”

Assessments:

Essay 3

Quiz 3

Week 8

Class — No class for ECOL 3003 MVCR

Week 9

Class — Ecosystem Services and the Impact of Forestry Production

Tropical forests have been deforested for different human activities since centuries ago. View, from an anthropocentric way, it is a problem, because our health and wellbeing depends upon the services provided by ecosystems and their components. We will learn about different ecosystem services (direct and indirect) and focus on the forestry production and learn about new alternatives to decrease tropical deforestation.

Activities:

1. Visit different initiatives to reduce pressure of deforestation (such as plantations and Reduce Impact logging forest) in Costa Rica.
2. Watch documentary “They Killed Sister Dorothy”

Readings:

Edwards et al. (2014)

Media:

“They killed Sister Dorothy”

Assessments:

Essay 4

Quiz 4

Week 10

Class — Impact of Tourism

Tourism is one of the world’s largest industries and it is still expanding. It can have different impacts on conservation. Done carelessly, it can alter ecosystems, but properly managed it can incentivize the protection of forest and natural resources.

Activities:

1. You will visit different protected areas and initiatives in the Monteverde region, such as the Monteverde Cloud Forest Preserve and the Children Eternal Rainforest
2. You will watch “Cracking the Golden Egg” or “Gringo Trails”

Readings:

WRI 2000

Self et al. 2010

Davies, J. 2007

Gora, A. 2013

Media:

“Cracking the Golden Egg”

“Gringo Trails”

Assessments:

Essay 5

Quiz 5

Week 11

Class — No class for ECOL 3003 MVCR

Week 12

Class — Review of materials

Week 13

Class — Challenges at the intersections

Assessment:

Oral Presentation

Week 14

Class — Final

Assessment:

Final Essay

Course Materials

Readings

- Anderson, E., Pringle, C. & Rojas, M. 2006. Transforming tropical rivers: an environmental perspective on hydropower development in Costa Rica. Aquatic Conserv: Mar. Freshw. Ecosyst. 16: 679–693
- Davies, J. 2007. Evolution of protected area conservation in Monteverde, Costa Rica. Thesis presented to the graduated school of the University of Florida for the degree of Master of Science. 68 p
- Edwards, D., Tobias, J., Sheil, D., Meijaard, E., & Laurance, W. 2014. Maintaining ecosystem function and services in logged tropical forests. Trends in Ecology & Evolution 29: 511-520
- Fang, K., Q. Zhang, H. Yu, Y. Wang, L. Dong and L. Shi. 2018. Sustainability of the use of natural capital in a city: Measuring the size and depth of urban ecological and water footprints. Sceince of the Total Environment. 631-632: 476-484
- Galli, A., Wackernagel, M., Iha, K. & Lazarus, E. 2014. Ecological footprint: Implications for biodiversity. Biological Conservation 173: 121-132
- Gora, A. 2013, "Sustainable Tourism Norm Transfer and the Case of Monteverde, Costa
- Rica" Senior Theses. Lake Forest College. 138 p.
- Laurance, W., Sayer, F. & Cassman, K. 2013. Agricultural expansion and its impacts on tropical nature. Trends in Ecology and Evolution 29: 107-116
- Pirard, R., Dal Secco, L. & Warman, R. 2016. Do timber plantations contribute to forest conservation? Environmental Science and Policy 57: 122-130.
- Self, R., Self, D., & Bell-Haynes, J. 2010. Marketing Tourism in the Galapagos Islands: Ecotourism or Greenwashing?. International Business & Economics Research Journal 9: 111 -126
- Tayleur, C., A. Balmford, G. Buchanan, S. Butchart, H. Ducharme, R.Green, J.Milder, F. Sanderson, D. Thomas, J.Vickery & B. Phalan. 2017. Global Coverage of Agricultural Sustainability Standards, and Their Role in Conserving Biodiversity. Conservation Letters. 10(5): 610–618
- World Resource Institute. 2000. A Guide to World Resources 2000–2001: People and Ecosystems: The Fraying Web of Life. 1 Edition. Washington. 276 p.

Media Resources

- Center for Responsible Tourism (Producers). (2010). Cracking the Golden Egg [Motion Picture]. United States: LocalFIlms
- Vail, P. (Director/Producer) & Estrella, M. (Producer). (2013) Gringo Trails [Motion Picture]. United States: Icarus Films
- Just Media (Producers). (2008). They Killed Sister Dorothy (Documentary). Brazil
- Felt Soul Media. (2014). Damnation. United States