



## **CIEE Monteverde, Costa Rica**

<b>Course title:</b>	Humans in the Tropics
<b>Course code:</b>	ECOL 3003 MVCR
<b>Programs offering course:</b>	Tropical Ecology and Conservation
<b>Language of instruction:</b>	English
<b>U.S. semester credits:</b>	2.00
<b>Contact hours:</b>	60.00
<b>Term:</b>	Fall 2023

### **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 human impact on ecosystems.

### **Learning Objectives**

By completing this course, students will:

- Deconstruct the driving forces behind trends in Costa Rica’s trends in energy production, urbanization, international tourism, agriculture, and forestry practices.
- Explore and critique current conservation management practices that seek to mitigate or reverse the negative impacts of human economic activities in Costa Rica.
- Formulate and debate proposals for alternative management practices, legislation or policies, and or cultural shifts that are needed or potentially more effective for the protection of Costa Rican ecosystems.
- Integrate knowledge of large-scale trends in energy production, urbanization, international tourism, agriculture, and forestry practices with suggestions for action at the individual (personal) level to protect natural environments and promote human well-being.

### **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.

Five full-day sessions will begin with an introductory lecture on the theme. The group then visits one or more sites, conducts interviews or holds conversations with stakeholders, professionals, experts on the topics, or other resource people. The students then engage in discussions, debates, and reflection. Students will be assigned a quiz and an essay topic at the end of the day on the specific theme of the day.

### **Assessment and Final Grade**

1. Quizzes	40%
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2.	Essays	30%
3.	Oral presentation	10%
4.	Final exam	10%
5.	Participation	10%
	TOTAL	100%

## **Course Requirements**

### **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.

### **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.

## **Attendance**

To encourage engaged learning, regular class attendance is required throughout the program. This includes any required co-curricular class excursion or event, as well as internship, service-learning, or other required field placement.

An excused absence in a CIEE course will only be considered if approved by a CIEE Center Director/Academic Director (not the Instructor), and:

- it is a self-certified absence for illness (only once per course, requires formal request before or within 24 hours, cannot miss assessment worth more than 5% of final course grade)
- a doctor's note from a local medical professional is provided
- evidence of a family emergency is provided
- it is a pre-approved observance of religious holiday

Unexcused absences include personal travel and/or travel delays, as well as missing more than 25% of a single class period (including tardiness and early departure). Assessments missed due to unexcused absences will be marked as zero. Students with over 10% unexcused absences will be contacted by CIEE staff. Students with over 20% unexcused absences will be contacted by CIEE staff, receive a formal warning letter (shared with their home institution) and lose 10% of the final course point total (e.g., a final A grade of 93% will be lowered to a B grade of 83%).

For more detail, please consult your CIEE Academic Manual.

## **Academic Integrity**

Academic integrity is essential to a positive and inclusive teaching and learning environment. All students are expected to complete coursework responsibilities with fairness, respect, and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own can result in grade penalties or disciplinary action. See the CIEE Student Academic Manual for further information on academic integrity.

***N.B. Course schedule and co-curriculars are subject to change. The final duration and distribution of content and assignments will be determined and presented to students at the onset of the course.***

## **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: 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)

Taylor et al. (2017)

Assessments:

Essay 2

Quiz 2

Class: No classes for ECOL 3003 MVCR

**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:

## **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. *Science 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