

## Study Center in Monteverde, Costa Rica

<b>Course name:</b>	Humans in the Tropics
<b>Course number:</b>	ECOL 3003 MVCR
<b>Programs offering course:</b>	Costa Rica: Monteverde - Tropical Ecology and Conservation
<b>Language of instruction:</b>	English
<b>U.S. Semester Credits:</b>	2 semester credits
<b>Contact Hours:</b>	60 hours
<b>Term:</b>	Spring 2018
<b>Course meeting times:</b>	8 AM – 6 PM; February 11 <sup>th</sup> March 01, March 8 <sup>th</sup> , March 24 <sup>th</sup> and April 21 <sup>st</sup>
<b>Course meeting place:</b>	Classroom, Monteverde Biological Station
<b>Professor:</b>	Gisella Fernandez
	<b>Contact Information:</b> mobile phone (506) 8843-6680 and email gisellafern@gmail.com
	<b>Office address:</b> CIEE Office, Monteverde Biological Station
<b>Office hours:</b>	By appointment

### 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.

### Objectives

To experience firsthand how people use different ecosystems in the Tropics; to place such behavior into larger context of economics, sociology, anthropology and environmental science. To understand how environmental problems are generated through food production, settlement, commerce and industry. But the idea is not to focus only in the problem, but also to explore innovative approaches that are trying to reduce, mitigate or compensate this impact and approach sustainability.

### Learning goals

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

- Recount firsthand the conversion of ecosystems by different human productive activities.
- Connect how these activities have affected the natural environment and the human

- population link to them.
- Give concrete examples of how personal and institutional changes are trying to reverse the negative impact on the natural environment.

Course Prerequisites: No prerequisites.

Methods of Instruction: Experiential learning will be encouraged through the combination of excursions, field activities, and interviews 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.

### Assessment and Final Grade

Discussion and class participation:	10%
Quizzes	40%
Essays	40%
Final, comprehensive essay	10%

### Course Requirements

**Discussion and class participation (10%):** 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 (40%):** 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, and from field visits.

**Essays (40%):** 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 rubric at the end of this document.

**Final, comprehensive essay:** 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.

### **Course Structure**

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. The five themes are:

Weeks 1-2: Field Trip

Urbanization activities in San Jose, visit Banana, Pineapple, Oil Palm plantations

Weeks 3-4

- **Impact of Population, Consumption, and Urbanization:** We will review the environmental impacts of population growth, consumption, and economic wealth, giving emphasis to developing countries. You will estimate your own ecological footprints, as well as those of urban residents in Costa Rica to gain insight into how impacts vary across different demographic groups. Because this will be your first encounter with Costa Rica, you will explore the capital and experience aspects of urbanization directly for a concluding discussion.

Weeks 4-5

- **Impact of Food Production:** 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. You will visit livestock, coffee, and other farms, and also learn about innovative practices to increase sustainability.

Weeks 5-6

- **Impact of Energy Production:** 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. You will learn about the sustainability of the main sources of energy production in this country (hydropower, wind, geothermal and solar).

Weeks 6-7: Field Trip

Walk through Childrens Eternal Rainforest and learn its conservation story, visit hydroelectric plant, go to turtle conservation project, visit tree plantations and learn Reduced Impact Logging protocols, learn driver of coral reef degradation.

Weeks 8-9

- **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.

Weeks 9 - 10

- **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. You will visit different protected areas and initiatives in the Monteverde region, such as the Monteverde Cloud Forest Preserve and learn from locals what works and what does not.

Weeks 11-12 Review

Weeks 13-14 Final Essay

### Required readings

**The following assigned articles should be read prior to the start of class.**  
**During the class, additional readings will be assigned for discussion.**

- 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
- Blackman, A & Rivera, J. 2013. Does Tourism Eco-Certification Pay? Costa Rica's Blue Flag Program. *World Development* 58: 41-52
- 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
- Galli, A., Wackernagel, M., Iha, K. & Lazarus, E. 2014. Ecological footprint: Implications for biodiversity. *Biological Conservation* 173: 121-132
- Laurance, W., Sayer, F. & Cassman, K. 2013. Agricultural expansion and its impacts on tropical nature. *Trends in Ecology and Evolution* 29: 107-116
- Nekola, J., Allen, C., Brown, J. *et al.* 2013. The Malthusian-Darwinian dynamic and the trajectory of civilization. *Trends in Ecology and Evolution* 28: 127- 130
- Pirard, R., Dal Secco, L. & Warman, R. 2016. Do timber plantations contribute to forest conservation? *Environmental Science and Policy* 57: 122-130.
- Pollan, M. 2007. *The Omnivore's Dilemma: the search for a perfect meal in a fast-food world.* Bloomsbury Publishing.
- 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

### **Additional readings**

Here is a selection of readings that can be valuable for essays and further insight:

- Bernard, F.; de Groot, R & Campos, J. 2009. Valuation of tropical forest

services and mechanisms to finance their conservation and sustainable use: A case study of Tapantí National Park, Costa Rica. *Policy and Economics* 11: 174–183.

Bush, M. B. 2000. *Ecology of a Changing Planet*. 2<sup>nd</sup> ed. Prentice-Hall, New Jersey.

Daily, G. C. & Ellison, K. 2002. *The new economy of nature. The quest to make conservation profitable*. Island Press, Washington D. C.

Evans, S. 1999. *The green republic. A conservation history of Costa Rica*. University of Texas Press.

Farley, J. 2012. Ecosystem services: The economics debate. *Ecosystem Services*: 40–49.

Halweil, B. 2004. *Eat Here: Reclaiming homegrown pleasures in a global supermarket*. W.W. Norton & Company, NY.

Imhoff, D. 2010. *The CAFO Reader: The tragedy of industrial animal factories*. Watershed Media, University of California Press.

Lankao, P. 2007. Are we missing the point? Particularities of urbanization, sustainability and carbon emissions in Latin American cities. *Environment & Urbanization. International Institute for Environment and Development (IIED)*. 19: 159–175.

Phalan, B., Bertzky, M., Butchart, S. H. M., Donald, P. F., Scharlemann, J. P. W., *et al.* 2013. Crop Expansion and Conservation Priorities in Tropical Countries. *PLoS ONE* 8: e5175

**Assignment Rubric.**

**Directions: Your essay will be graded based on this rubric. Therefore, use this rubric as a guide when writing your essay and check it again before you submit it.**

Criteria	Advanced	Proficient	Basic	Minimal	Undocumented	
	5 points	4 points	3 points	2 points	1 point	
Content	<b>Purpose statement: Does it answer the prompt?</b>	The statement is complete, clear, logical, consistent, elaborated, and skillfully designed.	The statement does not fulfill completely one or two of the requirements.	The statement does not fulfill completely three of the requirements.	The statement does not fulfill completely four of the requirements	The statement is not answering the prompt, it is not defined or it is incoherent and unrealistic.
	<b>Does it contain the proper background information?</b>	Well-developed introduction, engages the reader, and creates interest. Contains detailed background information.	Introduction creates interest. Sufficient background information is provided.	Introduction adequately explains the background, but may lack detail.	Background details are a random collection of information	There is no background information or it is unclear and not related to the topic.
	<b>Does it include key terms?</b>	All key terms are established and well defined and they are used with	Not all key terms were clear, but the ones that were, were well defined. Or they were	Key terms are established but have not been consistently used or were not clearly	Key terms are unclear.	Key terms are not established or they are inappropriate.

		confidence and sophistication.	not explicitly defined.	defined.		
	<b>Does it support the main ideas with illustrative examples?</b>	The essay has information that is clearly related to the main topic. Details are persuasive, interesting, and insightful; they contextualize and inform the argument. Examples from fieldtrips or personal experience are given. When necessary, evidence countering the main argument is also effectively addressed.	The essay has enough information that is clearly related to the main topic. Good argument with sound evidence. Examples from personal experience are given.	The essay has information related to the main topic, but it does not support arguments adequately or completely.	The essay has inappropriate, insufficient or unclear details to support the main statement.	The essay has no details to support the main statement.
	<b>Does it have a proper use of sources and documentation?</b>	Went above and beyond to research information; used sources (at least two new references) to support, extend, and inform, but did not substitute the writer's own development of idea. Sources are cited appropriately in the text and in the References. Use citation guidelines from Biotropica or Ecology.	One of the requirements was not fully completed. For example, not properly cited in the text.	Besides the material provided, only one new reference was used and/or all sources were not cited properly.	Used the material provided in an acceptable manner, but did not consult any additional resources. Sources are generally inappropriately cited or not cited.	Did not utilize resources effectively; did little or no fact gathering on the topic. If sources were used, they were not cited.
	<b>Does it have a good conclusion and gives insightful recommendations?</b>	The conclusion answers all questions with insight. It continues to stimulate the reader's thinking and may suggest questions for	The conclusion answers all questions satisfactorily and may suggest questions for further research, recommendations	The conclusion answers most questions, but may be unclear or incomplete with vague recommendations to improvement.	The conclusion answers most questions, but may be unclear or incomplete. No suggestion to improvement.	The essay ends without concluding or giving any recommendations to improvement.

		further research. Original and insightful recommendations.	ons.			
<b>Quality of Writing</b>	<b>Voice, style, and audience awareness</b>	The sense of audience, the voice and the style are fulfilling beyond expectations. Sentences are mature and parallel. The essay is written in a style and tone that is appropriate to the audience, topic, and purpose. The writer seems to be speaking in an authentic voice. Paper is enjoyable and interesting.	One of the following characteristics does not apply: Sentences are mature and parallel. The essay is written in a style and tone appropriate to the audience, topic and purpose. The writer seems to be speaking in an authentic voice.	Two of the following characteristics do not apply: Sentences are mature and parallel. The essay is written in a style and tone appropriate to the audience, topic and purpose. The writer seems to be speaking in an authentic voice.	The writer is not aware of the audience's needs. The essay is confusing. The writer is unable to sustain an appropriate voice.	The statement is very difficult to read because of its style and voice. It is not addressed to the proper audience.
	<b>Originality, clarity, and organization of the statement</b>	Statement was clear, extremely clever and presented with originality. The essay is organized and well structured and exhibits a clear pattern of development (chronological order, spatial order, comparison/contrast, etc.). Transitions help the paper flow smoothly.	Statement is somewhat original, clever at times, and fairly clear. Transitions were mostly appropriate, but sequence of ideas could be improved.	Predictable. Statement is not creative enough. Ideas are vague with some signs of logical organization. Transitions were not always smooth.	Ideas are unclear. There are few original touches to enhance the project, but did not incorporate them throughout. Format was difficult to follow and transitions of ideas were abrupt.	Essay is not clear, original nor organized.
	<b>Mechanics, Grammar, and Spelling</b>	All sentences are well constructed and vary in structure and length. The author makes no errors in grammar, mechanics, or spelling.	Most sentences are well constructed and vary in structure and length. The author makes a few errors in grammar, mechanics,	Most sentences are poorly constructed. The author makes several errors in grammar, mechanics, and/or spelling, but	Most sentences are well constructed, but they have a similar structure and/or length. The author makes several errors	Sentences sound awkward. They are distractingly repetitive or difficult to understand. The author makes numerous

			and/or spelling, but they do not interfere with the understanding .	they do not interfere with the understanding .	in grammar, mechanics, and/or spelling that interfere with the understanding .	errors in grammar, mechanics, and/or spelling that interfere with the understanding .
<b>Timeline</b>	Submitted on due date.		Submitted no more than 24 after deadline.		Submitted more than 24 after deadline.	