



CIEE Monteverde, Costa Rica

Course name:	Sustainable Development for the Tropics
Course number:	DEVE 3001 MTVE / ENVI 3002 MTVE
Programs offering course:	Monteverde Sustainability and the Environment Short
Language of instruction:	English
U.S. Semester Credits:	3
Contact Hours:	45
Term:	January Term 2020

Course Description

This course critically assesses the “triple bottom line”, that is, the balance of the environment, economy and society. We do this by exploring contemporary development issues for Costa Rica, the little country with the big reputation for sustainable development. The focus is on activities where there is a strong interface between the environment, society and the economy. This includes energy and international tourism. Both are critically important to the nation’s economy, as well as to its natural capital. Under pressures to grow the economy and globalize, the triple bottom line hangs in the balance for Costa Rica. Students hear from experts and insiders as they gain firsthand insight into the tensions and trade-offs of economic development, as well as possible directions toward a sustainable future (3 credits/4.5 quarter hours. 45 contact hours).

Learning Objectives

Upon completion of this course, students will:

- Have command over the basic concepts and terminology necessary to describe, explain, and critically discuss (with peers as well as with professionals) the essential components and operating systems of renewable electricity power plants (wind, solar, geothermal, and hydropower) as well as the electricity distribution system employed in Costa Rica
- Be competent at questioning, assessing, and communicating (via conversations with professionals, in persuasive writing for a general audience, and in debates and discussions with peers) the advantages and disadvantages of renewable energies and centralized distribution systems of electricity in Costa Rica in terms of their social, economic, and environmental impacts
- Become an enlightened and engaged stakeholder in matters related to electricity production and consumption, at home and abroad
- Have command over the essential concepts and terminology necessary to describe, explain, and critically discuss (with peers as well as with agriculturalists) the basic history and contemporary production systems of coffee, bananas, and pineapple in Costa Rica



- Be competent at questioning, assessing, and communicating (via conversations with agriculturalists, in persuasive writing for a general audience, and in debates and discussions with peers) the advantages and disadvantages of Costa Rica's agricultural trade system (including smallholder agricultural production and large-scale agribusiness, for both domestic and international trade) in terms of dependency theory, food sovereignty, and food security
- Be able to relate poverty and poverty traps to food security and food sovereignty in Costa Rica in particular, and in tropical, developing nations in general, and propose agricultural trade and production practices and systems that can effectively avoid or minimize poverty traps
- Become an enlightened and engaged stakeholder when making decisions related to food purchase and consumption, at home and abroad
- Have command over the basic concepts and terminology necessary to describe, explain, and critically discuss (with peers as well as with tourism business owners and other stakeholders) the essential features of rural, adventure, and eco-tourism
- Be competent at assessing the conditions for successful implementation of ICDPs (Integrated conservation and Development Programs), specifically in tourism
- Be able to evaluate conditions under which international tourism and travel lead to tourism treadmills and mass tourism, as well as critically judge whether eco-tourism undermines or enhances the protection of tropical biodiversity in Monteverde and in tropical, developing nations in general
- Be able to analyze and articulate the potential for international tourism and travel as a poverty-reduction strategy in tropical, developing nations
- Become an enlightened tourist and an engaged stakeholder when making tourism-related decisions

Course Prerequisites

Two (2) semesters of university-level courses in the natural sciences, environmental studies, sustainability, or agriculture

Methods of Instruction

This course is taught through the use of lectures, field visit, interviews, videos and documentaries, critical reading exercises, surveys, group discussions, debates, and persuasive writing assignments. An overnight field excursion to northwestern Costa Rica allows students to visit four different kinds of renewable energy power plants and a National Park that may be impacted negatively if the government approves geothermal energy exploration in protected areas. Interviews with professionals in the energy sector offer opportunities to learn from the experts, including perspectives on why expansion into national parks may be necessary. One-



day excursions to diverse Monteverde farms will give students direct experiences with agricultural production and opportunities for exchange with local agriculturalists. Outings to experience tourist attractions, coupled with discussions involving diverse stakeholders, and offer students an insider’s view on international tourism and travel.

Assessment and Final Grade

- Participation/Discussions 20%
- Quizzes 20%
- Persuasive writing exercises 30%
- Project 10%
- Final exam 20%

Course Requirements

Participation (20%)

Attendance is noted for each lecture, discussion, and activity. As the semester proceeds, students earn points for thoughtful commentary, questions, and overall engagement. Students discuss topics treated in lectures, outings, readings, and documentaries, and critically examine them through the lens of economic sustainability and development. Full participation, expected of each student, includes asking questions, listening to others, and articulating coherent viewpoints.

Quizzes (20%)

Students take two 20-point quizzes consisting of short answer questions on materials related to the lectures, field activities, and assigned readings.

Persuasive writing exercises (30%)

Students make visits and conduct interviews at renewable energy power plants and tourism business and write two 600-word essays on (1) whether national parks should be opened for energy exploration; and (2) whether eco-tourism enhances or detracts from the protection of biodiversity at Monteverde.

Project (10%)

Students conduct surveys of tourists and locals to assess feasibility of carbon-smart tourism transportation alternatives, and then make presentations to peers.

Final exam (20%)



Students take a 100-point exam. It consists of questions of multiple choice and short answer questions related to the lectures, field activities, and assigned readings (70 points) as well as a take-home portion (30 points) that consists of essays (open book, open-notes), due on the final exam date.

Weekly Schedule

Week 1

- Lecture 1: Sustainable Development in and for the Tropics. The 3 pillars of sustainability, the Earth Summits, the Brundtland Report, Rio Declaration rights and responsibilities, Rio Principles, Integrated Conservation and Development Programs, Kyoto Protocol, Clean Development Mechanisms, Joint Implementation, Emissions trading, all from the perspective of the global south
- Lecture 2: Tourism: Global and regional trends. Patterns and trends in the tourism industry worldwide and for Costa Rica. Tourism as an Integrated Conservation and Development Project. Impacts of international travel on local and regional cultures, with examples from Costa Rica; impacts of international travel on the economies of Central American nations, including Costa Rica; management of solid waste and wastewater associated with international travel; greenhouse gases associated with air travel for tourism
- Lecture 3: History of conservation and tourism in Monteverde. Introduction to MV's original watershed, Monteverde Cloud Forest Preserve, Children's Eternal Rainforest, Monteverde Conservation League; tourism trends in MV; tourism infrastructure and services in MV; Eco-, agro-, rural, and mass tourism defined and distinguished; tourism treadmills explained with examples from Costa Rica and Monteverde
- Lecture 4: Tourism certification. Third party versus first party certification; Costa Rica's Certificate of Sustainable Tourism (protocol, monitoring, and impacts on tourism practices); green-washing; certification pitfalls, myths, and impacts of certification on consumer psychology, especially in context of eco- and agro-tourism

- Films and Podcasts
 - "Gringo Trails": a documentary about the unexpected consequences of international tourism and how to improve the sustainability of tourism-centered economies
 - "Cracking the Golden Egg", by CREST (Center for Responsible Tourism). A documentary on the impacts of, and controversies surrounding, international tourism on Costa Rica's Pacific coast.



- Monteverde.FM Sustainability Studios series of podcasts on tourism and growth in Monteverde
- Excursions
 - Visit popular tourism attractions
- Discussion 1
 - Sustainability of Eco-tourism? Be prepared to discuss the videos, readings, and your own tourism experiences.
- Readings and online resources
 - Davis (2009)
 - Honey (2008)
 - Honey (2011)
 - Instituto Costarricense de Turismo (2015)
 - Koens *et al.* (2009)
 - National Academy of Sciences (2010)
- Assignments
 - Quiz #1
 - Persuasive writing exercise #1
 - Discussion participation #1

Week 2

- Lecture 5: Energy Distribution and Consumption in Costa Rica: Essential Background. Energy consumption by sector; consumption trends for electricity and for transportation fuel; international trade in electricity; national and international (SIEPAC) distribution systems; pilot program in small-scale distributed electricity generation. Clean Development Mechanism and Joint Implement
- Lecture 6: Hydropower Electricity Production in CR. Basic operations hydropower plants; cost to build and operate; levelized costs; land footprint of power plant and associated infrastructure; impacts on the human community; impacts on the surrounding ecosystem; social, environmental and economic impacts on regional and larger scales; controversial proposal for large-scale dam in Costa Rica indigenous region (the Diquís proposal)
- Lecture 7: Wind Electricity Production in CR. Basic operations wind farms; cost to build and operate; levelized costs; land footprint of power plant and associated infrastructure; impacts on the human community; impacts on the surrounding ecosystem; social, environmental and economic impacts on regional and larger scales; Costa Rican wind farms and the Clean Development Mechanism of Kyoto



- Lecture 8: Solar Electricity Production in CR. Basic operations solar panels and solar power plants; cost to build and operate; levelized costs; land footprint of power plant and associated infrastructure; impacts on the human community; impacts on the surrounding ecosystem; social, environmental and economic impacts on regional and larger scales
- Lecture 9: Geothermal Electricity Production in CR. Basic operations geothermal plants; cost to build and operate; levelized costs; land footprint of power plant and associated infrastructure; impacts on the human community; impacts on the surrounding ecosystem; social, environmental and economic impacts on regional and larger scales; issue of siting geothermal plants in Costa Rica; Costa Rican geothermal plants and the Build-Own-Transfer Program of Kyoto
- Overnight excursion to northwest Costa Rica
 - Visit wind farm, hydropower, geothermal and solar power plants, as well as Rincón de la Vieja National Park.
- Discussions
 - Energy Exploration in Costa Rica's National Parks? This follows a visit to a geothermal power plant and to Rincón de la Vieja National Park, the site of extensive geothermal activity and the subject of a controversial plan to open national parks and protected areas to energy exploration.
- Readings and online resources
 - Ambientico (2015)
 - Instituto Costarricense de Electricidad (2015)
 - United Nations Environment Programme (2015)
 - World Commission on Environment and Development (1987)
- Assignments
 - Quiz #2
 - Persuasive writing exercise #2
 - Discussion participation #2

Week 3

- Lecture 10: Climate Smart tourism. Ecological and carbon footprints associated with international tourism (global, and for Costa Rica). De-construction of the tourism carbon budget: major and minor players in GHG emissions; alternate modes of transportation on carbon budgets; is there a market for footprint-friendly tourism?



- Lecture 11: Costa Rica and Carbon-Neutrality: National goals and progress; national carbon budgets; impacts of food and transportation industry; government initiatives; local/regional initiatives; CORCLIMA and Sail Cargo.
- Guest lecture by CORCLIMA or Sail Cargo representative
- Activity
 - Project: survey and analysis of transportation alternatives in Monteverde
- Excursions
 - Visit CORCLIMA and Chamber of Tourism.
- Assignments
 - Project Presentation
 - Final Exam

Course Materials

Readings

- Davis, J. (2009). The creation and management of protected areas in Monteverde, Costa Rica. *Global Environment 3-2009*. Retrieved 7 January 2013, from <http://www.globalenvironment.it/DAVIS.pdf>. Pp 96-119
- Honey, M. (2008). *Ecotourism and sustainable development: Who owns paradise?*, 2nd edn., (pp. 160-214). Washington: Island Press.
- Honey, M. (2011). Giving a grade to Costa Rica's green tourism. In S. B. Gmelch (Ed.), *Tourists and tourism: A reader*, 2nd edn. (pp. 439-449). Long Grove: Waveland Press, Inc.
- Koens, J. F., Dieperink, C. & Miranda, M. (2009). Ecotourism as a development strategy: experiences from Costa Rica. *Environment, Development and Sustainability* 11, 1225-1237
- National Academy of Sciences. (2010). *Certiifiably sustainable? The role of third-party certification systems: Report of a Workshop*. <http://www.nap.edu/catalog/12805.html>. Pp. 9-26
- World Commission on Environment and Development. (1987). *Our Common Future*. Oxford University Press. Pp. 44-65

Online Resources

- Ambientico. (2015). <http://www.ambientico.una.ac.cr>
- Instituto Costarricense de Electricidad. (2015). *Proyectos energicos*. <https://www.grupoice.com>
- Instituto Costarricense de Turismo. (2015). *Certificate of sustainable tourism*. <http://www.visitcostarica.com/ict/paginas/sostenibilidad.asp?tab=4>



United Nations Environment Programme (2015). *Rio Declaration on Environment and Development*.

<http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>

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