



EF Course Itinerary Collaboration Series

EARTH 2194: ENVIRONMENTAL SUSTAINABILITY IN COSTA RICA



Costa Rica is known worldwide for its conservation efforts, which have attracted millions of tourists to its parks and reserves that cover 27% of the country.

However, the ongoing transition from an agricultural to a service-based economy coupled with accelerated infrastructural development threatens Costa Rica's biodiversity and society. As rural areas give way to urban development, resources including fresh water and energy resources are stretched to their limit. In this integrated, multidisciplinary program we will explore the complex relationship between the use and conservation of natural resources and economic development in Costa Rica, in particular the role of protected areas in ensuring the country's environmental sustainability.

DR. OZEAS COSTA

Associate Professor
Ohio State University

- Course title: Earth Sciences 2194: Group Studies in Global Change and Sustainability
- Summer Semester 2014: 14-day study abroad to Costa Rica, May 12 — May 21
- Credits: 3

FIELD EXPERIENCE

1. Assess different conservation practices and establishing the effectiveness of protected areas
2. Interview farmers, park managers, business owners and community stakeholders
3. Visit field sites including: a coffee plantation in the outskirts of San Jose; the Institute of Biodiversity INBioparque; the Poas Volcano National Park; Arenal Volcano National Park; the La Fortuna geothermal springs; the wetlands of Caño Negro Wildlife Refuge; the coastal ecosystems at Manuel Antonio National Park; the Santa Elena Cloud Forest; tree planting at the Santa Elena Reserve.

COURSE OBJECTIVES

Students will learn core concepts of the geological and natural history of Central America and Costa Rica in particular. Students will also:

1. Identify the major tropical ecosystems of Costa Rica
2. Learn ways in which natural resources are used to produce consumable goods and provide ecosystem services
3. Understand the connections between economic, environmental, and social aspects of sustainability
4. Explain how sustainability relates to their lives and how their actions impact sustainability
5. Learn to think holistically about sustainability using perspectives from across multiple disciplines
6. Learn to apply sustainability concepts locally and globally by engaging in real world experiences highlighting the conflicts between development and conservation
7. Understand the connections between their academic field and issues of global sustainability
8. Develop an integrated vision for sustainability that embraces their personal lives, profession, local communities, and the world at large

SYLLABUS OVERVIEW



AT OHIO STATE UNIVERSITY

May 5–9

Lecture series part 1:

- Tectonic evolution of the Central America convergent margin (introduction to plate tectonics theory)
- Geomorphology and physiographic provinces (geomorphic diversity in Central America)
- Volcanism and volcanic landforms (relationship between magma composition, eruption and volcanic landforms)
- Late Quaternary sedimentation and stratigraphic units (weathering process and formation of sediments)
- Biogeographic regions and biomes (climatic ecological zones in Central America)

IN COSTA RICA

May 12–21

- Day 1: Arrive in San Jose
- Day 2: Guided visit to INBioparque (Costa Rica Institute of Biodiversity) and tour of Poas Volcano National Park
- Day 3: Boat tour of the Cano Negro Wildlife Refuge; Interview with park managers and scientists
- Day 4: Visit to La Fortuna geothermal basin and Arenal Volcano National Park; Interview with ecotourism operators
- Day 5: Visit to Santa Elena Reserve; lecture and tree-planting at the Santa Elena Institute; Visit to Santa Elena cloud forest and canopy tour
- Day 6: Explore the Carara Biological Reserve; Interview with ecotourism operators and community stakeholders
- Day 7: Investigate coastal ecosystems and erosional/depositional features at Manuel Antonio National Park
- Day 8: Meeting with artisans and community stakeholders in Sarchi
- Day 9: Return home

BACK ON CAMPUS

May 26–30

Lecture series part 2:

- Conservation units and protected areas (exploring the Sistema Nacional de Areas de Conservacion)
- Hydrogeology and groundwater resources (classification of Central American aquifers)
- Ecotourism and sustainable agriculture: Exploring Costa Rica's ecotourism industry



ABOUT THE PROFESSOR:

Ozeas Costa of Ohio State University built this program to address the issues of sustainability in areas with a high level of biodiversity. The information included in this course itinerary is an excerpt from his comprehensive syllabus.