

The Cloud Forests of Monteverde:
An Exploration of Ecology and Conservation in Costa Rica
UVM Summer Academy

COURSE SYLLABUS
(Preliminary document!)

Instructors: Victor Izzo, PhD; Sebastian Castro, PhD

Dates: July 9-22, 2016

Course Location: Estacion Pocosol – Monteverde, Costa Rica

Course Description:

Ecology is a scientific term derived from the Greek word for home, Oikos. For many, however, ecology is often considered the study of natural processes and interactions *separate* from the human “home”. This perceived separateness can lead to complacency and the short-sighted management of global natural resources and the degradation of life-sustaining ecosystems. By understanding and appreciating the interdependence of human culture (society) and ecological systems (ecology) a more sustainable way of life can be conceptualized.

Over the course of ten days, students in this course will have the opportunity to explore one of the most pristine ecosystems in the world, the Monteverde cloud forest of Costa Rica. During our stay at the Biological Research Station located at Estacion Pocosol, we will look to explore the rich tropical “home” of the largest private reserve in Costa Rica, the Children’s Eternal Rainforest (CER). Using the CER as a teaching model, we will observe and study the diversity of species interactions found within the park with particular attention paid to the ecosystem services provided by the park. To appropriately assess the value of these services we will create a learning framework to consider the leverage, values and concerns of each identified stakeholder. As a group we will also discuss, debate and present our individual perceptions and opinions of the tropical conservation movement and the future of Costa Rica’s forest preservation agenda.

Course Format:

This field based course will be divided into two modules. The first module will explore important ecological concepts (e.g. biodiversity, community ecology, ecosystem services etc.) via relevant readings, classroom and online discussions and experiential learning opportunities at Estacion Pocosol. As we explore the tropical landscape we will use our five senses to observe, reflect and discuss the diverse array of interacting species throughout the cloud forest ecosystem. During classroom reflections we will discuss the emergent properties of ecological communities and their value (i.e. ecosystem services) at multiple scales (e.g. ecosystem, park, region, country, etc.) In partnership with a local Costa Rican ecologist and Dr. Sebastian Castro, we will also learn about the current research being conducted within the CER and other regions of Costa

Rica.

The second module of the course is the human ecology portion of the program. During this module students will examine the intersection of culture and conservation through participatory projects supporting the development and maintenance of the CER and Estacion Pocosol. Costa Rica boasts a rich history of conservation and eco-tourism and was the first country to explicitly create a payment system for ecosystem services. As part of this service learning module, students will reflect upon the economic and social impacts of ecosystem service payments, conservation planning and eco-tourism on local communities.

Learning Outcomes:

- Observe and appreciate the diverse array of ecological interactions within the CER and the research projects being conducted at the reserve.
- Develop a basic understanding of tropical ecology with a strong emphasis on biotic interactions and ecosystem services provided by the CER.
- Develop and/or refine our “cultural lenses” to provide a context for conservation decision making and human interactions.
- Critically examine and debate the issues surrounding resource conservation and the ethical foundations of the conservation movement both in the USA and Costa Rica
- Compare and contrast the current conservation policies enacted within the USA and Costa Rica.
- Assess the goals of Estacion Pocosol and the impact(s) of conservation projects on local communities.

Required Text(s):

The Green Republic: A Conservation History of Costa Rica, Sterling Evans, 1999 University of Texas Press, Texas

Tropical Ecology, John Kricher, 2011 Princeton University Press

Pre-Trip Reading

Chapters 1 *The Green Republic: A Conservation History of Costa Rica* ~ Evans 1999

Chapter 1 *Tropical Ecology* ~ Kricher, 2011

“The Tragedy of The Commons” Garrret Hardin ~ Science 1968

“The Land Ethic” Aldo Leopold ~ 1940

Classroom Discussion Readings

Chapters 3 & 4 Tropical Ecology ~ Kricher 2011

Chapter 2 *The Green Republic: A Conservation History of Costa Rica* Evans 1999

Excerpt from “Learning from 20 years of Payments for ecosystem services in Costa Rica”

“The value of the world’s ecosystem services and natural capital” ~ Constanza et al., Nature 1997

Assignments

Online Content will include:

Introductions

Discussion Questions

Blog contributions

In Resident Content:

Daily Lectures

Daily Reflection Participation

Daily Guided Journaling

Class Presentations

Final Synthesis Essay

Learning Assessment:

Online coursework and participation	20%
Journal submissions	30%
In resident participation	30%
Final Synthesis Essay	20%
Total	100%

In Residence Itinerary

Module 1	Procedures	Topics and/or Activities
Arrival July 20, 2015 (~4pm)	Introductions and course objectives will be discussed in detail	<ul style="list-style-type: none"> - Course Expectations - Safety Protocols - Cultural Sensitivity - Personal Responsibility Contract

Ecology of Estacion Pocosol July 21-26 th 2015	<p>Morning: <i>Each day will begin with an early morning breakfast followed by personal reflections of the previous day's events and experiences.</i> <i>Objectives for each day will be set with goals and expectations during the morning reflections</i></p> <p>Daytime: <i>Daytime classes will be field-based explorations of the CER. Some formal class-time to review ecological concepts will occur as needed.</i> <i>Free form explorations of the forest landscape will also be utilized for some lessons.</i></p> <p>Evening <i>Evening dinners will be paired with wrap-up reflections and discussion roundtables to help shore up difficult concepts/topics.</i></p>	<p>Topics during the field ecology module will include some or all of the following activities (time and weather dependent :</p> <ul style="list-style-type: none"> - Small mammal tracking - Identification and monitoring of herptofauna - Butterfly trapping and identification - Forest quadrat sampling and biodiversity measurements - Bird identification via sight and sound - "Listening to the forest" exercises for greater awareness of cloud forest fauna. - Observation of current research projects within the CER.

<u>Module 2</u>	<u>Procedures</u>	<u>Topics and/or Activities</u>

**Conservation and
Communities**
July 26-30th 2015

Morning:
Each day will begin with an early morning breakfast followed by reflections of the previous day's events and experiences. We will then set out to assist in various volunteer projects throughout Estacion Pocosol.

Daytime:
Daytime classes will be centered around lunchtime discussions of cultural exchanges and the experience of international volunteerism. We will also explore the objectives of Estacion Pocosol, the CER and the surrounding communities.

Late Afternoon/Evening
Late afternoon activities during Module 2 will give students the opportunity to explore Monteverde in a less structured manner via ecologically based exercises. Evening dinners will again be paired with wrap-up reflections and discussion roundtables. These discussions will primarily focus upon the interaction of conservation efforts and community resources.

Volunteer projects will be led by Estacion Pocosol Staff members and will include all or some of the following projects:

- **Forest Drainage and Waterways**: Students will assist in tending to forest drainage areas. We will help clear debris and widen areas of drainage while minimizing the effect of detrimental erosion.
- **Informational and Educational Support**: Create, replace or remove signage throughout the park to better serve the mission of the CER.
- **Infrastructure and Equipment Maintenance** : Assist in the maintenance of the station's various buildings, equipment and living quarters.