Tropical Ecology Course in Costa Rica
PCB-2350C
3 credit hours

Your Guide to Costa Rica

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Introduction

Only through travel can we experience some of the greatest educational opportunities. Costa Rica is one of those opportunities that should not be missed. It is a paradise that abounds in natural diversity and beauty. I believe it is important for everyone to experience the value of these relatively untouched areas and to understand their value toward global sustainability.

This course will involve taking Palm Beach State College students to Costa Rica to study the biological structure and diversity of pristine and disturbed habitats. The course will assist efforts to provide hydrologic and environmental baseline data about the ecosystem and an evaluation of habitat quality in several locations in Costa Rica. This spatial data can be used in support of future studies and would be shared with managers in Costa Rica.
What is Tropical Ecology?

Tropical Ecology deals with the study of the relationship between organisms and the following ecosystems:
- Tropical Rainforest
- Tropical Riverine and Floodplain
- Mangrove
- Seagrass
Why Costa Rica?

- Costa Rica has twelve distinct ecological zones, more than in all of North America
  - Costa Rica amazingly is home to 5% of all known animals on this planet
- Over 9,000 species of vegetation
- Volcanoes (112 craters)
- No other country in the world has devoted so much of its territory to environmental protection.
Why Costa Rica?

- Costa Rica is a tropical paradise with hundreds of beautiful waterfalls and crystal clear rivers and streams.

- Wildlife abounds with the diverse bird life and numerous mammals.
Costa Rica - Central America Overview Map
Costa Rica - Detailed Location Map
Course Objective

Understand how tropical ecosystems function in terms of nutrient cycling, energy flow, connectivity of habitats, and the influence and importance of climate and hydrology on ecosystem structure.

Train students in use of Bioassessment for purposes of understanding anthropogenic and natural impacts on the ecological features that sustain the rainforest within El Zota Biological Field Station.

Instruct students in the use of flow meters and various types of water quality sampling equipment.

Provide data benefits for Costa Rica managers of El Zota Biological Field Station.

Study and examine the diverse freshwater and upland ecosystems within the Costa Rica rainforest and the estuarine ecosystems of Tortuguero.
Located in NE Costa Rica near the Barro Del Colorado Reserve, the station includes over 2470 of lowland forest that is diverse native flora and fauna, the station is one of the largest of its kind in Costa Rica. Habitats include lowland rainforest, lowland swamp forest, pasture land and reforested areas. A small river and several freshwater lagoons are found within the boundaries. These hydrologic features provide unique habitats that host species that otherwise might not be present. Students will assess the biology and monitor flow & water quality parameters in this system.
El Zota Threats

Agricultural activities are encroaching on the Rainforest and thereby threaten the Biology, hydrology and water quality of the Rainforest Ecosystem. Rainforests worldwide are being threatened at an alarming rate: The Amazon Rainforest, for instance, is vanishing at 3 TIMES the rate it was in 1994. 20% of the Amazon Rainforest has already been lost forever and 214,000 acres are being lost per day!!
Costa Rica – Tortuguero National Park

This park has incredible biological diversity, due to the existence within the reserve of eleven different habitats, including rainforest, swamps, beaches, and lagoons. It is located in a tropical climate, is very humid, and receives up to 250 inches (6,300 mm) of rain a year.
Tortuguero National Park

There are three aquatic trails, and one trail by foot. The hiking trail is called the Gavilan Trail and is 1920 meters long. The three water trails are the Harold (most popular), Mora, and Chiquero. Activities in Tortuguero include: comparing diversity along established monitoring transects between Primary and Secondary Forest Communities.
Field Activities

Prior to departing for Costa Rica students will be given assignments relative to rainforest and estuarine biogeography, structure and function. Exercises using bio-assessment tools will also be conducted.
Field Activities

Water quality and flow measurements may be taken by students using flow meters and water quality sampling equipment.
**PALM BEACH STATE COLLEGE**

**Detailed Syllabus**

**Course Number and Title:**

**PCB 2350C: TROPICAL ECOLOGY**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>May 17, 2012</td>
<td>Tropical climates and ecosystems and the significance of tropical ecosystems – Range of Ecosystem Types, Rainforest structure, diversity and function (Productivity, Nutrient Cycling, Mineral Cycling, Rainforest Gaps, and Rivers through Rainforests)</td>
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<tr>
<td>May 25, 2012</td>
<td>Transfer from San Jose Airport to <strong>El Zota Biological Field Station, stop at Braulio Carrillo</strong></td>
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<tr>
<td>May 26, 2012</td>
<td>Early morning Canal tour, Tortuguero Village, Canopy Tour</td>
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<td>May 27, 2012</td>
<td>El Zota Biological Field Station Flora and Fauna habitat activities and, zip line instruction and use, inclusion of tree heights into environmental assessment project. Overnight.</td>
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<tr>
<td>May 28, 2012</td>
<td>El Zota Biological Field Station hiking activities and Diversity and Richness Exercises, field investigation of habitat types, begin environmental assessment project of hydrologic and environmental features, data collection. Overnight at Lodge.</td>
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<td>May 29, 2012</td>
<td>Primary Forest Assessments and Turtle Night Hike</td>
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<tr>
<td>May 30, 2012</td>
<td>Hike up Cerro Tortuguero Assessment and</td>
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<tr>
<td>May 31, 2012</td>
<td>Visit the National Museum</td>
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<tr>
<td>June 1, 2012</td>
<td>Return to Florida</td>
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<tr>
<td>June 7, 2012</td>
<td>Classroom Setting: Data analysis and project summary</td>
</tr>
<tr>
<td>June 14, 2012</td>
<td>Final</td>
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</tbody>
</table>
Costa Rica – El Zota
Biological Field Station
Includes:

- Three nights accommodation and meals at El Zota
- Round trip vehicle transfers to/from El Zota
- Cook to prepare meals at El Zota
- Field Keys and Identification Sheets

Lodging: Students and faculty are housed in separate cabins with bunk beds and running water. Flush toilets are available and electricity is provided by generator for at least 6 hrs per evening. Meals are provided in a communal dining area and include a varied sample of local cuisine.
Costa Rica – Tortuguero National Park

• 2 nights accommodation at Vista Al Mar Lodge
• Canal tours
• Canopy tours
Travel Requirements and Things to Bring Checklist

- Passport and copy of Passport, Visa (if applicable)
- Copy of proof of citizenship (birth certificate is best)
- College Release Form
- Health Verification Form
- Health Insurance (Travel insurance optional)
- Registration and Tour (all lodging, meals and tour transportation included)
- Textbook and field guides, water-proof marker
- Pen, pencil
- Backpack - Daypack plus or larger
- Poncho or rain jacket, dive skins or long sleeve shirts
- light long-sleeved shirts and long pants and swimsuit
- Prescript. drugs, anti-diarrhea medicine, Sunblock, motion sickness med
- Spending money, Traveler checks, and credit cards
- Garbage bags and ziploc bags (for wet clothing)
- a few clothes pins for hanging your clothes up to dry

Optional

- Disposable camera - underwater type (no place to buy film)
- Digital Camera
- Plastic Bags (for items you don’t want to get wet)
- Aqua shoes, sandals and regular shoes
- Water bottle, Towel and washcloth
- Flashlight/batteries (extra batteries)
- Toiletries (toothbrush, shaving kit, soap, etc.)
- Spare Eyeglasses, sunglasses
Things to Bring Checklist
Continued.....

Costa Rica is a very informal country with a casual lifestyle.

For Tortuguero:
- Shorts and T-Shirts – Bathing suits
- Sneakers, deck shoes or sandals
- Hat or cap
- Polarized sun glasses

For El Zota:
- Hiking shoes or boots
- Hat or Cap
- Water bottle or Camelback type hydration unit
- Energy bars
- Camera, film and binoculars
- Clean bed sheets (Twin size) and pillowcase – Insect Repellant
Things to Bring Checklist Continued.....

- Good hiking shoes
- Bug repellant and mosquito net for sleeping
- First aid kit
- Bed sheet
- Camelbak or other water supply
- Garbage or ziplock bags for wet clothes
- Backpack
- Sun Screen
- Doxycycline or other antibacterial product
Currency

The official currency of Costa Rica is the Colon (pronunciation is similar to Bologne). In general the exchange rates is about 500 colons to the dollar. You can exchange American dollars for colons at most major hotels in San Jose (as a service to customers of the hotel) for a small fee. If you do not wish to pay a fee, you can go to a bank and get the exact exchange rate for your money. We do not recommend this for non-Spanish speakers. You are not likely to find colons easily or cheaply in the U.S. or Europe, so wait until you arrive to exchange money. Please exchange some cash for spending money before coming to the field station, as it will be difficult to do so after you arrive. At the airport and on the streets in San Jose, there are street vendors who will attempt to exchange money for you. We do not recommend this method, as you may be swindled. We recommend changing $50 to $100 dollars to colons before coming to the station. This will allow you to purchase refreshments at El Zota, and souvenirs on your field trip.
Things to Bring Checklist Continued.....

Textbook:

Things to Bring Checklist
Continued.....

Passport

Flashlight

Sunscreen
Things to Bring Checklist Continued.....

- Daypack Plus
- Camelback Rehydration
- Waterproof field Journals
- Hiking/Backpacking Boots
- Poncho
- Digital Camera
Things to Bring Checklist
Continued....

Camp Soap

One Bed sheet

First Aid Kit
Safety

• Food: Snacks and bottled water are easily accessible in all the larger towns. However, purified water is not sold in the villages, and snack variety is limited. Cold, bottled soft drinks are sold in most villages. Don’t drink beverages with ice.
• Don’t handle animals (monkeys, snakes, dogs and cats).
• Always carry your money and passport on your person when traveling. Although we have never had any incidences of thievery at El Zota, your instructor can keep your passport and money under lock and key when you arrive at the station, if you so desire.
• Make a photocopy of the photo page of your passport and keep this in a separate place from your actual passport. This can aid in getting a new passport should you lose yours.
• Leave your driver’s license, school ID and unnecessary credit cards at home. If it is difficult to replace, if you don’t need it, if you can’t afford to lose it, leave it at home. The only necessary documentation in Costa Rica is your passport.
• If you take medication for any reason, be sure you have an adequate supply.
• Bring plenty of plastic bags (Ziplocs and the like). The air is humid at the station and you may wish to protect some items from the moisture. Many electronic devices do not work well in the humidity (including many laptop computers, electronic cameras, video cameras, etc). Be particularly careful with cameras and binoculars.
• Bring plenty of insect repellant with deet, but remember, deet eats plastic and 100 percent deet is not recommended for direct contact with skin.
Emergency Contacts –
Internet available in most locations

Professor Shuford Cell Phone: 561-713-9339
shufordr@palmbeachstate.edu

Dr. Lorna Sue Joachim
(on-site administrator and technical staff for El Zota Biological Field Station):
lfjoachim@comcast.net
There are several required documents that need to be completed prior to being allowed to enroll in the class. It is recommended that you pick up a packet from Pat Castro (Administrative Assistance to the Environmental Science Department) on the Garden’s campus SC 130 (561-207-5726; castrop@palmbeachstate.edu). Some of these items include proof of passport, the Student Information and Release Form proof of medical insurance coverage for the trip, etc.

All students must follow the Student Code of Conduct found in the Student Handbook, Student Responsibilities, Section 5. under: http://www.palmbeachstate.edu/x340.xml The college reserves the right to repatriate any student per the Assumption of Risk Agreement.

All students must follow the Student Code of Conduct as it relates to the prohibition for the possession of Alcohol, Narcotics and Illegal Drugs. This prohibition includes:

- Possession, sale, use, transfer, purchase or delivery of drugs (including drugs not prescribed for the user) or alcoholic beverages.
- Possession of drug paraphernalia.
- Public intoxication on campus or at a College-related site or activity (includes International travel).