



Geography 3010 Amazonia Cloud Forest Biodiversity  
February 29 – March 5, 2016

**COURSE DESCRIPTION:**

Biogeography Field Course: Cloud Forest Biodiversity is a course that combines the study of tropical Biogeography with an international community service course. Participation is open to those interested in tropical Rainforest studies, Biogeography, and man's influence upon the ecosystem.

Participants will learn about the ecology of Ecuador's Amazonia Cloud Forest, the geography of the region, biodiversity, biogeography, and man's impact upon the Upper Amazon Region. During the mornings, members will donate physical and intellectual energies to assist in improving the San Martin Zoological Garden, a local zoo that has approximately 100 animal species and is in need of physical maintenance, establishment of docent programs, development of management skills, and on-going programs that will provide better care and protection of the animals. Our course this time will be the complete photographic documentation of the species housed at the zoo and identifying their Latin taxonomic name.

The Zoological Center is the only repository in the Ecuadorian Cloud Forest for hurt and injured animals. Consequently, there are several endangered animals that are always being nursed back to health. The need for medical services is great.

This mini-course is intended to promote academic understanding of the Biogeography of the Amazonia cloud forest with hands-on community service contributions. In addition, the rural nature of Baños provides an ideal setting for learning Andean culture and language. Located at 6,000', it is one of two primary entrances into the Amazon Basin and is far removed from the large metropolitan centers of Quito and Guayaquil. It is a perfect setting for the student who is interested in Ecuadorian Sierra cultural, ecology of the cloud forest, and biodiversity.

By developing a program that includes the academic study of Biogeography, immersion into language and cultural of the region, and community involvement, students will develop and life-long understanding of how to make a positive impact in such an area.

Finally, the philosophical basis of this course rests upon the foundation that students recognize science as a set of scientific principles formulated by acts of intelligence and imagination; begin to understand the depth of scientific inquiry and investigation; and can distinguish the foundations of truth as represented by scientific thinking as opposed to unverified assertions.

## **LEARNING OUTCOMES**

- A. Students will learn about the physical geographic regions of Ecuador;
- B. Students will apply knowledge about the biogeography of Ecuador to their efforts to document and research the country through their explorations;
- C. Students will understand the relationship of Ecuadorian cultures to Biodiversity;
- D. Students will examine sustainable efforts that provide economic opportunity to the residents of Ecuador;
- E. Students will develop their own theories based upon data collected in the field about endangered and threatened species.
- F. Articulate the relationship between biogeography and biodiversity in the tropical cloud forest ecosystem.
- G. Participate in saving endangered animal species.
- H. Discover how tropical rain forest mammals survive in their environment.
- I. Acquire images through photographic documentation of these mammals.
- J. Determine if zoos are a menace to the animal society or a genetic bank guaranteeing a future for specific animal species.

## **JOURNAL/FIELD NOTEBOOK GUIDELINES**

The daily journal and a Field Notebook are required for this part of the course. It is intended that time is set aside every day to record experiences, situations, and impressions of daily activities.

The journal consists of a daily, 1-2 page (at least 250 words) entry that records 1) major events during a student's stay in Baños and 2) relates the realities of life in Ecuadorian Andes to theoretical material assigned from readings and obtained from lectures. The journal may also serve as a primary source of material for later use at Nova Southeastern.

In addition to the daily entries, the Field Notebook should contain: 1) a student's cognitive map of the area; 2) a physical & human geographical description of the area; 3) an environmental assessment of man's impact upon Upper Amazonia; 4) a statement about the San Martin Zoological Garden; 5) a study of one animal in the zoo; 6) and a proposed community service course that could be implemented at a later date.

Description: Cloud Forest Biodiversity is a course that combines research with a biodiversity course. Participants will learn about the ecology of Amazonia, the geography of the region, the cloud forest ecosystem, biodiversity, and man's impact upon the Upper Amazon Region. Research will focus on census of the species found in the San Martin Zoo and upon local habitat destruction.

## COURSE ITINERARY (\*learning outcomes)

Feb 29: Meet at Miami Airport, upon arrival in Quito at 2:00AM and fly to Quito and arrive at 1230PM same day, then transfer to the San Martin Zoological Gardens in Baños... a 3-4 hour trip through the Valley of Volcanoes, traveling over the Andes Mountains to the cloud forest city of Baños

*\*Students will learn about the physical geographic regions of Ecuador;*

March 1, 2; Class Days

Sessions 1, 2,

Session 1: Orientation (Digital photography and Go Pro review)

Session 2: Wildlife/Nature Photography

*\* Acquire images through photographic documentation of these mammals.*

Biogeography of the Amazonia Cloud Forest

*\* Articulate the relationship between biogeography and biodiversity in the tropical cloud forest ecosystem*

*\*Participate in saving endangered animal species*

March 3

7:00-10:00 AM Photo Census Course

*\*Acquire images through photographic documentation of these mammals.*

Session 3: Geology & Geomorphology

*\*Comprehend the physical landscape surrounding Baños.*

10:00-8:00 AM Trip to Tungurahua Volcano

*\* Students will understand the relationship of Ecuadorian cultures to Biodiversity;*

2:00 - 5:00PM Data Collection and Field Analysis

March 4

7:00-10:00AM Photo Census Course

*\*Acquire images through photographic documentation of these mammals.*

10:00AM-8:00PM Trip to Puyo - Plant Biodiversity

*\*Students will understand the relationship of Ecuadorian cultures to Biodiversity*

March 5 return to airport in Quito with arrive in Miami late afternoon

Program cost: \$1990 includes airfare from Miami, all lodging, breakfasts and dinners in Baños, the ground portion of the course in Baños, and transportation to Baños.

Deposits and refunds: Cost of the field component is \$1990. All payments are to be made to NSU and delivered to the Mailman-Hollywood Bldg. room 219. An initial deposit should be submitted along with the application, release of liability form, and copy of passport on or before December 11, 2015; the balance is due by January 11, 2016.

Payments: You may pay by check, money order, or credit card. Make your check payable to Nova Southeastern University or use the credit card payment form available on the Ecuador Travel Study Web page.

Passports: You will need a valid passport. Visas are not required for U.S. citizens. It is the responsibility of non-US citizens to check with the Office of International Students regarding visa requirements and other necessary documents. **Passport expiration dates must be after September 5, 2016.**

Medical: It is your responsibility to check with your doctor and/or local public health people for proper up-to-date information on any immunizations that may be needed. Do

not drink the tap water; drink only bottled water and beverages. Do not eat food from the street.

Safety: Carry your passport and money in a passport pouch around your neck. Pickpockets are very skilled at ripping off tourists in Ecuador... protect yourself. Although quite safe, Baños is the gateway to the Amazon and a variety of people from all over the world migrate through this gateway. Never walk the streets alone; always travel in a small group of 2 or more.

Volcanic Eruptions: Tungurahua Volcano is in a constant state of eruption. Once every 2 or 3 years, there is a major eruption. In 1999 Baños was evacuated. Our evacuation plan is quite simple. Once the warning from the government is issued, all course participants should go immediately to their hotel room, pack, and meet in front of the hotel. A bus has been arranged to take the group back to Quito via Puyo (away from the volcanic activity). Generally the lead time for such an evacuation is four hours or more.

Press: Ecuadorian officials love this program and its potential. They plan to have various press agencies, photographers. Please cooperate and provide intelligent answers to questions so that NSU and other supporting groups are represented in a positive way.

Out of pocket (Not included in the program fee; this is money you will need in Ecuador) Money: Meals in Quito (\$10), lunches in Baños (\$40), and departure taxes from Ecuador (USD\$25) + personal spending money.

What to bring: Two pair of tennis shoes (or old shoes), swim suits. Baños will be warm in the days (70°-80°) and cool at nights (50°-60°). You will also need a light jacket, raincoat or poncho.

Class Requirements; Students are expected to wrap up learning outcomes, work on data analyses, finish the journal, and write a paper (as the final exam).

Release forms: The University Legal Office requires all participants to sign a release form for this course.

Deposits: An initial deposit should be submitted (\$500) to the Mailman-Hollywood Bldg. room 219 along with the application materials on or before December 11, 2015; the balance is due in the Mailman-Hollywood Bldg. room 219 by January 11, 2016.

Required pre-trip meeting: There is a required pre-trip meeting in Parker 362 on Thursday afternoon 5:00PM, January 7, 2016 in Parker 362.

Travel insurance to cover accidents/health and travel interruption is required for the field portion of the course and must be purchased by January 26, 2015.

What to bring for the zoo: Any taxonomic guide to Amazonia animals will be very helpful. Below is a list of needs for the zoo. Some of these items can be packed away in a suitcase. Contact Dr. Barker for larger items you wish to bring and contribute to the zoo.

1. freezer for keeping food & meat
2. laboratory instruments
3. medicines & vitamins
4. technical books of management
5. books, care, physiology of animals
6. recapturing devices for animals that escape
7. tranquilizers & sleeping agents
8. prescription doses for animals
9. scales for weight
10. office equipment: typewriter, computer, video camera, still camera, kitchen utensils,
11. Plumbing faucets for each cage
12. uniforms for employees, shoes, work garments
13. nylon nets for containing birds
14. water purifier
15. construction tools
16. walkie talkies & cellular telephone
17. television/VHS tape system/videos on subjects
18. books, vet med. literature, journals
19. hand tools, i.e., screwdrivers, hammers, pliers, etc. (checked-in luggage; NOT carry-on)
20. knives, axes, hatchets (checked-in luggage; NOT carry-on)

Problems & hazards participants can experience:

1. poor quality drinking water... drink only bottled water/beverages
2. poisonous biotic materials: by ingesting or handling certain plant materials by being scratched by certain plant thorns or nettles by handling certain fungi by handling/molesting certain snakes
3. mosquitoes
4. pick pockets
5. sexual harassment from local citizens
6. poor quality food on the streets
7. natural events, i.e., earthquakes, volcanic activity
8. high altitude nausea, nose bleeds, headaches
9. close proximity to wild animals, i.e., scratching, bites, fleas
10. exceedingly steep and dangerous canyon walls
11. wandering off alone
12. drug availability and severe police/legal penalties
13. possible political instability
14. Living conditions on the zoo compound are very modest, but clean and comfortable,
15. Lost and/or stolen luggage.
16. A quasi-governmental report on current travel conditions in Ecuador by AON.