

**Woodsworth College and School of Environment
University of Toronto
Summer Abroad 2017 Program in Ecuador
May 20 – June 22**

Tentative Course Outline and Assessment Scheme

ENV 395Y0 Special Topics Field Course: Ecology and Conservation in the Amazon, Galápagos, and Andes

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Background:

Ecuador is the smallest of the Andean countries but it has huge physical and biological diversity. We will examine this by taking field trips to three very different parts of the country: the High Andes, the western Amazon Basin, and the Galápagos Archipelago.

The High Andes:

The spine of Ecuador is formed by sixty or so volcanic peaks in the Andean subduction zone. Most of Ecuador's volcanoes are extinct or dormant, but eight are active. We will visit an indigenous family in the Andes, and will hike Chimborazo – at 6268 m, the highest peak in Ecuador and anywhere on the equator. We will look at treelines and their characteristics, the flora and fauna of the alpine zone, the polylepis forest and the páramo, and the physiological, cultural, and economic adaptations of the indigenous mountain people, the Quechua. We will also visit active volcanoes Cotopaxi and Reventador, and a cloud forest where we will see many Andean birds and butterflies.

Western Amazonia:

Oriente, Ecuador's section of the Amazon Basin, takes up nearly half of the country but has less than 5% of its population. From Coca, the provincial capital, we'll head down the Napo and Tiputini Rivers to the Tiputini Biodiversity Station, a research facility run by Boston University and the University of San Francisco at Quito (USFQ), our hosts in Ecuador. The area is still largely pristine rainforest and is a major biodiversity hotspot. In our week there we will focus on tropical rainforest ecosystems – their richness, structure and behaviour – and will apply skills field research skills. We will also look at traditional uses of the forest by the Waorani and other indigenous groups, and at the consequences of recent exploitation by oil companies, including deforestation and fragmentation, road construction and increased access, and other forms of environmental degradation.

Galápagos Archipelago:

The Galápagos Islands lie astride the equator, nearly 1000 km west of mainland Ecuador. Of the sixty or so islands, only four have permanent settlements. All of the islands are volcanic and, like most island chains in the Pacific, they sit over a tectonic hotspot. The eastern islands are quiet but the western ones, particularly Isabela and Fernandina, are still very active. We will spend five days based at USFQ's Galápagos Academic Institute for the Arts and Sciences (GAIAS) campus on San Cristóbal and another five days seeing the other islands. One highlight is a trip to Sierra Negra on Isabela, one of the largest active volcanic craters in the world; another will be a visit to Española, an uninhabited island that is the only breeding site in the world for the waved albatross.

Isolation has made the Galápagos a living laboratory for evolutionary biologists and for those interested in island biota and their vulnerability. We will see famous endemic species, including giant tortoises, Darwin's finches, and marine iguanas, and examine the deleterious effects of introduced species and the various efforts at control and elimination of invasives. The pattern of life here is largely determined by the frequency and intensity of El Niño events. This phenomenon has global consequences, but in the Galápagos it brings both life and death. In Puerto Ahora we will visit the famous Charles Darwin Research Station to learn about conservation efforts there.

Course Goals:

Through our course activities, it is our intention to:

- establish a learning community that promotes individual creativity, productive interactions, and mutual support, to facilitate both student learning and personal growth;
- provide opportunities for students to challenge themselves while experiencing the extraordinary and unique environments of the Andes, the Amazon, and the Galápagos islands;
- expand students' awareness of the relationships among social, political, economic, and environmental issues in fragile and contested situations;
- encourage students to learn about, consider, and engage with diverse cultural values and perspectives on environmental, economic, and social issues in the developing world, including indigenous perspectives;
- provide opportunities for students to apply classroom-based learning in the real world.

Learning Outcomes:

After having completed this course, you should be able to:

- maintain a notebook of your field work experiences;
- synthesize and interpret field observations;
- design and carry out an experimental study in a tropical rainforest environment, including interpretation and communication of results, with a small group of student colleagues;
- summarize the unique ecological, geological, and climatological characteristics of the High Andes, the Amazon, and the Galápagos Islands;
- discuss some of the many challenges facing Ecuador today, with regard to conservation, habitat threats, species at risk, invasive species, climate change, land management, and marine and freshwater environments;
- summarize the impacts of human activities on these unique environments, including issues related to tourism, waste management, sustainable energy, and resource extraction;
- relate current human impacts on the environment to the historical roots and development of activities like fishing, mining, tourism, and oil extraction in Ecuador;
- introduce others to a native species of the Andes, the Amazon, or the Galápagos, with which you have become familiar through course work;
- produce a term paper, in scholarly style, on a topic of your choosing that is relevant to environmental issues in Ecuador; and
- use, without aids, scholarly terminology appropriate to the course settings.

Evaluation:

Pre-course assignment (due May 14 – submit online)	5%
Amazon project (experiment/report/presentation; due June 4)	10%
Test #1 (June 8 at USFQ)	20%
Test #2 (June 19 at USFQ)	20%
Galápagos project (field notebook/report; due June 21 – submit online)	10%
Term Paper (due July 6 – submit online)	35%

Required reading:

Links to reading materials will be available on our course Blackboard site. There is no reading package or textbook to buy.

Please be sure to explore our course Blackboard site thoroughly, and read your course guidebook *When in Ecuador 2017* for additional important course information.