



ES 360 ECUADORIAN ECOSYSTEMS

IES Abroad Quito

DESCRIPTION:

Students will examine the main ecosystems of Ecuador—tropical rain forests, the Páramo, cloud forests, tropical dry forests, mangroves, and the Galápagos Islands. They will study their physical environments, including animals and plants, evolution, speciation, and major interactions. Students will also analyze some of the conservation problems related to these ecosystems. Field study trips to the Páramo, a cloud forest, and a tropical rain forest.

CREDITS: 3 credits

CONTACT HOURS: 45 hours

LANGUAGE OF INSTRUCTION: English

PREREQUISITES: None

ADDITIONAL COST: None

METHOD OF PRESENTATION:

Lectures, student presentations, and field study visits.

REQUIRED WORK AND FORM OF ASSESSMENT:

- Class Contributions - 10%
- Midterm and Final Exams - 40%
- Research Paper - 15%
- Field Trip Reports - 20%
- Class Presentation - 15%

Weekly assigned readings, one class presentation based on student research paper about an environmental problem of Ecuador, two field trip reports, midterm and final examinations; attendance at all course-related field study trips is mandatory; attendance at additional program-sponsored field study trips is strongly encouraged.

CONTENT:

- Overview of course, course materials and field trips.
- Introductory to the biogeography and climate patterns of Ecuador.
- The Galápagos Islands: Ecosystems, diversity, endemism, and conservation problems.
- Coastal ecosystems: Mangroves and tropical dry forest.
- Mountain ecosystems: Cloud forest, Páramo, and Andean valleys.
- Tropical rain forest: The Amazon basin and the chocó.
- Environmental and conservation problems of Ecuador (student presentations).

COURSE-RELATED TRIPS:

- Field study trips to the Páramo, a cloud forest, and a tropical rain forest.

REQUIRED READINGS:

There is no single book on the ecosystems of Ecuador, and there is very little information that can be as specific as the material we need to cover. Therefore, lectures are a very important part of the course, and I will give copies of Power Point presentations as reference material. The required readings are articles that give a framework of the material in each section. I have made an effort to find readings in English when available. Since we are taking parts of books or journal articles, each student will receive a photocopied package the first day of class.

- Granizo, T. "Introducción al Tema Humedales." Charlas en Memorias del I Seminario-Taller sobre Humedales. 1997.
- Grubb, P. J., J.R. Lloyd, T.D. Pennington, and T.C. Whitmore. 1963. "A Comparison of Mountain and Lowland Rain Forest in Ecuador: The Forest Structure, Physiognomy and Floristics." *Journal of Ecology*. Vol 51: 3 pp 567-601. 1963.
- Hamilton, L. "Una campaña por bosques nublados: Ecosistemas únicos y valiosos en peligro." La serie Focus de la IUCN. 1995.
- Josse, C., M. Hurtado, and T. Granizo. "La diversidad de los ecosistemas." La biodiversidad del Ecuador, Informe 2000. pp. 19-37. C. Josse (ed), Ministerio del Ambiente/Ecociencia/UICN, Quito. 2001.
- Kricher, J.C. *A Neotropical Companion*. Chapters 1-3. Princeton University Press, 1989.
- Osborne. *Tropical Ecosystems and Ecological Concepts*. Cambridge University Press, 2000.
- Pearson, D., L. Beletsky. "Ecuador: Geography and Habitats." pp. 6-12. *The Ecotravelers' Wildlife Guide Ecuador and the Galápagos Islands*. London: Academic Press, 2000.
- Ridgely, R.S and P.J. Greenfield. *The Birds of Ecuador*. pp. 18-26. Cornell University Press, 2001.
- Suárez, L. "El Páramo: características ecológicas." *Revista Geográfica*. 28: 39-50. 1989.
- Twilley, R.R., M. Pozo, V.H. Garcia, V.H. Rivera-Monroy, R. Zambrano, and A. Bodero. "Litter Dynamics in Riverline Mangrove Forests in the Guayas River Estuary, Ecuador." *Oecologia*. 111:109-122. 1997.

RECOMMENDED READINGS:

- Farnsworth, E.J. and A.M. Ellison. "The Global Conservation Status of Mangroves." *Ambio* 26:328-334. 1997.
- Josse, C. and L. Barragán. "La biodiversidad y sus facetas." La biodiversidad del Ecuador, Informe 2000. pp. 1-16. C. Josse (ed), Ministerio del Ambiente/Ecociencia/UICN, Quito. 2001.
- Phillips, O. L., P. Hall, A.H. Gentry, et al. "Dynamic and Species Richness of Tropical Rain Forests." *Proceedings of the National Academy of Science*. USA 91:2805-2809. 1994.