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Administrative Board of the College of Arts & Sciences
Office of General Education
CB # 3510
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UNC-CH

UNC-CH SPRING SEMESTER FIELD STUDIES PROGRAM IN ECUADOR

Dear Colleagues:

The Institute for the Environment (IE), the UNC Center for Galapagos Studies and the Study Abroad Office are seeking your approval for a proposal to establish an annual spring semester field studies program in Ecuador beginning in 2012. This program will be based primarily in the Galapagos Islands and hosted by the Universidad San Francisco de Quito's (USFQ) Galapagos Institute for the Arts and Sciences (GAIAS). Information about GAIAS can be found at:

<http://www.usfq.edu.ec/GAIAS/Paginas/GAIAS.aspx>

This proposal was developed by Steve Walsh and Phil Page (Geography Department), Greg Gangi (the Institute for the Environment) and Rodney Vargas (Study Abroad Office). Mr. Vargas conducted a site visit in February of 2010 to meet with USFQ faculty and staff and review the logistical arrangements for the program.

Partner Institution: Universidad San Francisco de Quito

The program academic base will be the Universidad San Francisco de Quito, a private, non-profit liberal arts university. Founded in 1988 by a group that included a UNC-CH alumnus (Santiago Gangotena, PhD Physics), USFQ has quickly become the premier university in Ecuador. Its faculty members hold roughly half the doctoral degrees in Ecuador, and in 2009 it was ranked first among Ecuadorian universities based on the number of peer-reviewed scientific publications. USFQ is committed to international education, each year hosting approximately 700 international students, of which approximately 300 are from the United States. USFQ is a UNC-CH Study Abroad-approved host for both semester exchange and summer programs.

USFQ's Galapagos Academic Institute for Arts and Sciences (GAIAS) on Isla San Cristobal in the Galapagos will be the primary host for this program. GAIAS was established in 2002 as an academic and research campus for international students as well as students from the Galapagos and the Ecuadorian mainland. They host a variety of semester and summer exchange programs in collaboration with 45 partner institutions in North America, Europe, and Asia. The GAIAS campus is located in Puerto Baquerizo Moreno, the seat of government in the Galapagos, and fronts directly on to the bay. Facilities include classrooms, computer labs, and outdoor facilities for marine classes and equipment.

The joint UNC & USFQ Galapagos Science Center also on San Cristobal Island in the Galapagos Archipelago and adjacent to GAIAS will also be involved in student training associated with this proposal. While GAIAS is an undergraduate teaching facility, GSC is a dedicated research facility where student interactions can be accommodated that extend from the field, lab, and classroom.

Rationale for the Program

IE's field sites play an important role in preparing students for graduate school and/or jobs after graduation by giving students research opportunities and by providing valuable hands-on learning experiences. The research projects also often lead into undergraduate honors theses. IE currently runs four domestic and two international field sites (one in England and a second in Thailand). This new site meets IE's long-term goal of establishing a field site in Latin America to appeal to the great number of UNC-CH students who study Spanish language.

This program, builds upon the existing and previously approved semester-long USFQ in GALAPAGOS PROGRAM based at Ecuador:

<http://studyabroad.unc.edu/programs.cfm?pk=2006>

It does so by adding a research component while allowing students to take a wide range of courses and visit a variety of regions in Ecuador. The new and additional research component will take place in two of the world's most important ecological sites: the Galapagos archipelago and the Amazon.

In the Galapagos, this program both supports and benefits from UNC-CH's growing research presence through the Galapagos Science Center and the establishment of the UNC Center for Galapagos Studies. UNC-CH and USFQ are jointly developing a Galapagos Initiative that grew out of continuing research projects in the Galapagos between faculty at the two universities. UNC-CH graduate students from a number of departments are working on dissertation research there, and in recent summers, UNC-CH undergraduate students participated in field data collection for a research project funded by UNC's Institute for Global Health and Infectious Disease. Furthermore, as a part of

this Galapagos Initiative, UNC-CH and USFQ are currently constructing a jointly-managed research facility on Isla San Cristobal in the Galapagos that will be a tremendous resource for future undergraduate research projects. The dedication of the Galapagos Science Center is scheduled for May 16, 2011. UNC Professor Stephen J. Walsh is the co-director of the Galapagos Science Center, and Carlos F. Mena, USFQ Professor of Life and Environmental Sciences (UNC PhD in Geography 2006) also is a co-director of GSC.

Program structure and content

This program follows the structure of the existing Universidad San Francisco in Galapagos semester-long program with the addition of a field research component at the conclusion of the existing semester program.

Students follow an ecology curriculum that includes courses from the natural and social sciences and combines classroom, field, and lab learning and a research methodology class. Students take five intensive 3-credit courses, all taught in three-week modules, which include: Evolution, Ecology and Conservation in the Galapagos; People, Politics and the Environment in the Galapagos; Marine Ecology; Galapagos and Andean Geoscience; and Mountain Studies. As part of the GAIAS courses, the students will also visit the Tiputini Biodiversity Station in the Amazonia, and USFQ's Riobamba campus in the highlands. In the Galapagos, the courses include visits to various sites and a 4-day cruise in the archipelago. In addition to the core courses, GAIAS also offers optional courses (not for credit) in basic Spanish (19 contact hours in "survival" language skills) and an introduction to digital photography.

Following the semester coursework, students will engage in a six-week research project. Students will work directly with UNC-CH faculty and/or their graduate students or USFQ faculty. Students will do their research at one of two USFQ field stations of their choice: GAIAS (San Cristobal, Galapagos) or Tiputini (Amazon region). Students working in the Galapagos will work closely with a UNC-CH faculty member or graduate student and will be able to utilize the new lab building that is being constructed as a joint venture between UNC-CH and USFQ. In Tiputini, USFQ faculty members have a number of ongoing research projects as well, which UNC-CH students can join under the support and supervision of USFQ faculty and field station staff. Students will not be allowed to work on more than one research project. At the end of the six weeks of research, students will participate in a three-day wrap-up session to present their research to their fellow students and the field site director. Please see Appendix One for examples of possible research topics at the two sites.

Students will receive a total of 18 credits for the program: 15 hours of TREQ transfer credit for the 5 courses taken at GAIAS (3 credits each) and 3 hours of UNC graded credit for the research project in *Research in Environmental Sciences and Studies for Undergraduates* (ENST 395).

In addition to the coursework, the program will include field trips to a variety of sites in the Galapagos with people involved in local conservation and ecological issues such as fishermen, resource managers, indigenous communities, and local scientists.

Research projects undertaken in the Galapagos will be based largely at the GAIAS campus in Puerto Baquerizo Moreno on Isla San Cristobal, with short stays on Isla Santa Cruz and Isla Isabela. On San Cristobal, students will be housed with families selected by GAIAS to host homestays, and the host families will provide breakfast and laundry services. On Santa Cruz and Isabela, students will be housed in hotels, with breakfast included. On each of the islands in the Galapagos there are restaurants within easy walking distance, most of which will have vegetarian options available on the menu or by request.

Puerto Baquerizo Moreno has a post office, several internet cafes, an international telephone calling center, banks (with ATMs), travel and tour agencies. Groceries are available for purchase at several small tiendas and bodegas. GAIAS maintains a small library in its classroom building in Puerto Baquerizo Moreno, and also provides free, wireless internet access. All of the islands to be visited by the students have both public and private health clinics.

In Tiputini, the various facilities of the camp are scattered throughout a few hectares (5 acres) of virgin rainforest. There are dormitories for a total of 32 students and large comfortable rooms for a total of 16 researchers or other visitors. All rooms are screened (although insects are generally not a problem) and have bathrooms with showers (cold water only) and flush toilets. Linen service is standard (sheets changed once per week and towels twice per week) and food service is provided in a central dining hall where three meals are served daily. Electricity is provided by a generator for several hours each day. The Tiputini field work site has radio-phone contact with offices in Quito daily and a satellite telephone (accessible to all visitors) that provides greater flexibility in communication for safety and security. An agreement with the Repsol-YPF oil operation provides access to medical support 24 hours a day.

Program Dates, Requirements, Availability, and Size

The program dates will be from early January until the end of June. It is expected that this program will be offered every spring starting in 2012.

The minimum GPA will be 2.75. Students must have at least Sophomore status. The maximum number of students who can be accepted in the program is 15. There is no minimum Spanish language requirement. Though students with a background in Spanish language will be welcome and will find constant opportunities to improve their language skills, faculty and support staff at USFQ and GAIAS speak English, and classes will be conducted in English.

We are happy to provide any further information that you may need to evaluate this proposal.

Sincerely,

Signed for Board: Philip A. Berber, Deputy Director

Larry Band
Director, Institute for the Environment

Stephen J. Walsh

Steve Walsh
Director, Center for Galapagos Studies & Co-Director, Galapagos Science Center

David Moreau
David Moreau
Chair, Curriculum for the Environment and Ecology

Robert Miles
Robert Miles, PhD.
Associate Dean for Study Abroad and International Exchanges

APPENDIX I

Galapagos Environmental Projects -- Anticipated, 2011-2012

Investigating the Spatiotemporal Dynamics of the Galapagos Marine Ecosystems

UNC-CH Faculty PIs: John Bruno (Dept. of Biology), Joel Fodrie (Institute of Marine Sciences), Ken Lohmann (Dept. of Biology), Charles Peterson (Institute of Marine Sciences), Brian White (Dept. of Marine Sciences)

The primary purpose of this project is to investigate how coastal and pelagic marine populations and communities in the Galapagos Islands respond to spatial and temporal variation in temperature and primary production. We will initiate a long-term monitoring & data collection effort, one major result of which will be to quantify the physical forcing of ENSO and spatial variation in upwelling intensity on a range of taxa and populations.

The Paradigm Shift towards Agriculture-as-Conservation in Multifunctional Landscapes

UNC-CH Faculty PIs: Gabriela Valdivia and Aaron Moody (Dept. of Geography), Carlos Mena (Adjunct, Dept. of Geography), Diego Quiroga (Adjunct, Dept. of Geography)

The aim of this project is to evaluate how social and ecological functions of landscapes vary across the farmland of the Galapagos, and how these are negotiated within the "agriculture-as-conservation" paradigm, a recent shift in policy approaches in the archipelago that recognizes that landscapes of food production can serve vital conservation interests. Methods will include secondary information review, development of a geo-referenced (GIS) farm database, in-situ data collection on Galapagos farms, and interviews with farmers and relevant local institutions.

Mobility to and within the Galapagos Archipelago

UNC-CH Faculty PIs: Ronald Rindfuss, Kyle Crowder, Margarita Mooney (Dept. of Sociology), Carlos Mena (Adjunct, Dept. of Geography), Diego Quiroga (Adjunct, Dept. of Geography)

The Galapagos Islands have seen extraordinary increases in population and tourist visits in recent decades. The purpose of this project is to understand mobility to and within the Galapagos Islands, as well as how tourism and migration blend into one another and influence one another. Data will be developed from secondary sources as well as survey data collection and interviews with tourists, travel agents, guides, and others involved in the tourist industry. The results will be a valuable contribution to the broader issue of

how population and tourism growth are affecting the environment of the Galapagos, and vice versa.

Tracking Local and Regional Green Sea Turtle Movement in the Galapagos Islands

UNC-CH Faculty PIs: Ken Lohmann (Dept. of Biology), Joel Fodrie (Institute of Marine Sciences), John Bruno (Dept. of Biology)

One of the major knowledge gaps of the Galapagos Marine Ecosystem is the habitat use and movements of vertebrates including fish, mammals, birds and reptiles. For instance, understanding which habitats/regions are most important in supporting the feeding, breeding, nesting or predator-avoidance activities of individuals can help direct resources towards conservation efforts that will have the greatest benefit in maintaining healthy vertebrate stocks. The goal of this project is to demonstrate the feasibility of and then carry out the monitoring of Galapagos green turtles' movements. We will utilize GPS data-logging and satellite tracking equipment, and in-situ (by students) monitoring of foraging and habitat use by turtles that remain near the San Cristobal coastline.

Interconnected Changes in Land Use/Land Cover, Population Growth, Tourism and Household Livelihood Strategies: Galapagos Islands

UNC-CH Faculty PIs: Stephen Walsh (Dept. of Geography), Ron Rindfuss (Dept. of Sociology), Carlos Mena (Adjunct, Dept. of Geography), Diego Quiroga (Adjunct, Dept. of Geography)

This project will use a complex systems approach to understand social and ecological system co-evolution and adaptation in the Galapagos Islands, with the overall goal of developing models robust enough to undertake computer-based "experiments" testing different development and conservation scenarios and the resulting impacts on ecological health, biodiversity, and system sustainability. Data development will include significant primary and secondary data collection to develop a spatially-explicit social and ecological GIS database that will be used as a platform for the creation of agent-based models, in which the modeled agents will include resident households, farmers, tourists, fishermen, and institutions such as the Galapagos National Park.