

THE SCHOOL FOR FIELD STUDIES

Environmental Field Studies Abroad

AUSTRALIA
COSTA RICA
KENYA
MEXICO
TURKS & CAICOS





Kenya

A large elephant is visible on the left side of the page, partially obscured by the text. The background is a savanna landscape with a blue sky and white clouds.

WHERE WE STAND.

The principle of sustainability is quite simple: our children, grandchildren, and great-grandchildren shall enjoy standards of health and welfare and have opportunities at least equal to ours. Within a society, this idea can create a bond between current and future generations and should influence our decisions about what and how much we consume and how we handle the waste we generate.

However, the prospects for achieving global sustainability are grim. People in highly developed countries enjoy a gross domestic product that is twenty-one times higher than that of their neighbors in the poorest countries. They consume per capita fifty-six times more energy, while emitting thirty-three times more carbon dioxide than their poorer neighbors. In 2004, one-third of the population in the world's least developed nations was undernourished. Sixty-six percent of the world's poorest do not use improved sanitation facilities. Couple that with the fifty-one percent who do not have access to clean water and you have to wonder how much of the world's population even stays alive.

The loss and fragmentation of native habitat, wildlife dispersal areas, forest cover, and key species to over extraction or urban and industrial expansion has serious implications for human well-being, since we are all dependent on environmental resources and services. The world has lost over one billion square kilometers of forest since 1990, forest that housed and fed people and wildlife alike, harbored invaluable plants and animals, and provided critical ecosystem functions in the cycling of nutrients, carbon, and water. In developing countries almost one-fifth of the disease burden is attributed to environmental risks.

Among the byproducts of globalization is a web of commerce, power, and human migration that is arguably as complex and interdependent as the web of life. Consider the spring of 2008, when America's ethanol policies (in response to rising oil costs, which were driven in part by fears that we couldn't sustain this resource) coupled with drought in Australia, led to food riots in cities from Mexico to Egypt. Worldwide, cities can expect to face increasing pressure as rural populations flee dwindling natural resources as well as famine, drought, and other climate-related catastrophes and seek education, healthcare, employment and food security in urban areas. The majority of these new urban people, however, live in peri-urban slums where fuel, sanitation, and drinking water are elusive and certainly no longer free.

We are both consumers and stewards of the environment, and thus have competing agendas. As the food versus fuel conflict shows, inaction is not an option when economies are shaken or people take to streets and demand their daily bread. But there are seldom silver-bullet solutions. Despite advances in technology, and the shared promises they seem to hold, we are still part of the web of life. The national economy of some countries, such as Costa Rica and Kenya, depends on the provision of ecosystem goods and services, where nature-based tourism depends on charismatic animal and plant species and their natural habitat. In other countries, the national economy depends on export of natural resources, such as timber, oil, and fisheries. Communities similarly depend on

environmental services such as flood mitigation offered by mangrove forests, the water retention and cleansing services of a forested hillside, the sequestration of carbon by trees and algae, and the health of the coral reef to sustain fisheries and attract tourists. Sustaining the environment and its resources has significant economic and security benefits to individuals and nations alike.

We're caught in the web of life as individuals, too. Since 1940, the emergence of infectious disease in human populations has risen, causing significant impacts on global health and national economies. While some of this rise is due to social factors, such as increasing density of human settlements, the majority of the reported emerging diseases have animal origins. And environmental problems are often related to social injustice, economic disparity, and demographic change. In Kenya, where SFS has recently launched a water conservation project, the poverty-environment link is quite clear. Where drinking water is polluted children and adults alike suffer gastrointestinal illness, leaving them too weak to study or work.

Stewards, consumers, and victims — it's hard to know how we're supposed to manage the environment. Especially during what seems to be a time of mounting crisis, from peak oil to global food shortages to climate change. Sometimes, we react to complexity and crisis by shutting down. Recently, the term "green noise" has been used to describe how even environmentalists can be overwhelmed by 1001 things (many of them seemingly contradictory) they should do to save the planet. Rather than tuning in, people may choose to tune out, or embrace simplistic and ultimately futile "solutions." "We're borrowing money from China to buy oil from the Persian Gulf to burn it in ways that destroy the planet. Every bit of that's got to change," says Al Gore, who is challenging us to produce 100 percent of our electricity from renewable energy and truly clean carbon-free sources within 10 years.

As a whole society, we need to understand the interconnectedness of our systems of trade, governance, production, economic systems, social conditions, consumption and waste management with environmental concerns — conservation of biodiversity, sustainable consumption and production of natural resources, and ecosystem integrity.

SFS students discover connections between environment and development, human and natural systems, and the protection and management of environmental resources. Their research can and does contribute to environmental management. They provide scientific data and information to decision makers, from resident fishermen to ministers of environment. They experience the rewards of applied research and the complexities of working with communities. And, perhaps most importantly, they experience the interconnectedness of natural and man made systems.

In the words of John Muir, "When one tugs at a single thing in nature, he finds it attached to the rest of the world."



Program Overview

The School for Field Studies: A Legacy of Environmental Leadership

In the early 1980s, following the first Earth Day and the creation of environmental studies curricula at some of the nation's top universities, there came a growing acknowledgement of the urgent need to sustainably manage the world's remaining natural resources. To some, it was becoming increasingly clear that the ranks of conservationists charged with the future stewardship of our planet must include not only scientists but also informed and concerned individuals from all walks of life.

In the summer of 1981, SFS sent its first group of 75 students into the field. Today, with 28 years of environmental work behind us, SFS is widely known as the premiere environmental study abroad program. Through our network of field stations, we have been teaching students how to collaborate with local community partners to address critical environmental problems and create long-term conservation solutions.

Who Studies with SFS?

SFS is not just for biology majors. We encourage students from many disciplines — environmental science, biology, liberal arts, economics, pre-vet and pre-med, engineers, business administration, communications, and more — to join SFS. We welcome a diverse student body and promote an atmosphere open to different cultures and perspectives. Students come to us with a broad spectrum of backgrounds and experiences.

Academic Program

Our interdisciplinary, experiential approach to education is designed to train students to learn by doing. As students engage in directed field research, they learn the value of experiencing another culture, and of collaborating with their fellow students, and with the local community to develop workable solutions. They are also given the rare opportunity to work side-by-side with an international research team and learn state-of-the-art field research skills.

Admission

SFS has rolling admissions year-round, and completed applications are considered on a first-come, first-served basis. Programs fill quickly, so we encourage you to submit your completed application early to ensure admission into the program of your choice. For details on how to apply, please refer to page 30. You can now apply on-line from our Web site: www.fieldstudies.org.

Curriculum and Academic Credit

SFS students are registered at and receive credit from Boston University, which accredits our programs. Most students from SFS Affiliate and Consortium schools receive credit directly from their home institutions. See page 32 for details.

Semester Program Structure

Semester programs run for approximately 95 days, including a 5-day midterm break. We compress a 16-week semester into 14 weeks, so be prepared for a very intensive but rewarding learning experience! Every semester program includes three topical courses (ecology, resource management, socioeconomics) delivered through classroom and field lectures and exercises, group projects, and other activities; and the Directed Research course, including field research, data analysis, write-up and presentation. Students are enrolled in all four courses at four credits each. Academic activities occur six days a week with at least part of one weekday devoted to a community service activity.

Objectives of the SFS Academic Program

SFS semesters are designed to help students identify and analyze local environmental issues, explore options for solving problems, and understand the decision-making process for taking action. The three topical courses prepare students for the Directed Research projects in the field by providing the conceptual foundation and through building technical field and analytical skills.

Research plans are designed in partnership with local stakeholders. The result is a Five Year Research Plan for each Center, which lays out a road map of priorities. Students will contribute to achieving the Center research goals by conducting first-rate field research on topics defined in the plan and designed by the faculty.

Field Skills Taught in Our Programs

Students will learn a suite of field skills and analytical techniques. Potential skills include species identification, animal behavior observations, population census, mark and recapture, habitat assessment and mapping, water sampling, plant functional trait sampling, restoration techniques, and transect and patch sampling in a variety of ecosystems, including forests, coral reefs, savannah. Students will learn social science field research methods, from structured questionnaires to informal interviews to participant observation. Students will use analytical tools to draw conclusions from their

research, including ecosystem valuation, cost-benefit analysis, and various statistical tests.

Summer Courses

Gain four credits in four intense weeks of field study with SFS. These summer programs include lectures, field exercises, research, and field trips. SFS does not have application deadlines, but students should apply early as programs fill quickly and applications are reviewed on a first-come, first served basis.

Financial Aid

Approximately one-third of our students receive SFS financial aid in the form of travel grants, scholarships, and loans. If you need financial assistance, please submit an SFS financial aid application (available on our Web site: www.fieldstudies.org) as soon as possible. Qualifying students may use a combination of federal financial aid (Stafford Loans, Pell Grants, and PLUS Loans), home school grants, and SFS financial aid and scholarships to participate in our programs. You must apply early to be considered for SFS financial aid and you should consult with your home school to determine whether you may use your institutional financial aid. For details regarding financial aid and program costs, please refer to page 31.

Language Preparation

All SFS courses are taught in English. However, your interaction with the local community will be greatly enhanced if you have local language conversation skills. Costa Rica and Kenya semester students will receive two additional credits (20 contact hours of language instruction; 20 hours of lecture, field, and community activities) for our culture and language courses. We offer informal language instruction in our Mexico program. You will need to have completed at least one semester of college-level Spanish in order to participate in our Costa Rica semester program.

Requirements and Prerequisites

Applicants for semester programs must be at least 18 years of age, in good academic standing, have completed at least one college-level ecology or biology course, and completed at least one semester of college prior to the start of the program.

**Applicants for the semester program in Costa Rica must have completed a college-level course in ecology or environmental studies, and are encouraged to have taken coursework in international development, economics, or anthropology. Students must have one college-level course in Spanish prior to participation.*



KENYA

FOOTHILLS OF MT. KILIMANJARO

FIELD PRACTICUM IN PUBLIC HEALTH AND ENVIRONMENT
SUMMER 2009 PROGRAM

See SFS Web site for program details and dates:
www.fieldstudies.org

New Program Highlight

In the early 1980s Kenya began a process of privatizing its open grazing land into group ranches. This significant land-use change has forced traditionally nomadic, pastoral peoples, including the Maasai, to adapt to more sedentary agro-pastoral lifestyles that confine them to smaller plots of land. The Maasai, a proud and historically self-sufficient society, are now facing many social, political, economic, and environmental challenges. The result has increased their vulnerability to disease and famine, and they frequently rely on relief food and scarce water resources to survive.

This major shift from nomadism to pastoralism has brought about new health problems for the Maasai, including an escalation in sanitation-related and water-borne diseases, infant and childhood disease, and HIV/AIDS. Access to quality health care, both physically and culturally, poses a critical issue for this predominantly rural population. The fact that there are virtually no baseline data on Maasai health status in southern Kenya adds another dimension to this public health challenge.

In Kenya, nearly 80% of the population, including the Maasai, still depends on herbal medicine — it remains an important source of treatment, particularly for rural communities. The World Health Organization's global strategy includes popularizing and incorporating herbal medicine in the national health systems of member countries. Consequently, Kenya is developing a national policy that will incorporate herbal medicine in its health provision strategy. Students participating in this SFS course may provide a vital link between the needs of the Maasai and Kenya's national health strategy.

Research Focus

SFS has partnered with several leading universities including Boston University School of Public Health, Northern Arizona University Schools of Nursing and Health Sciences, and the Moi University (Kenya) Schools of Public Health and Medicine to respond to the environmental health issues extant among the Maasai.

This course will provide students with field experience in assessing and analyzing public health and environmental concerns in identified Maasai communities in partnership with local community-based health organizations. This program is a graduate-level field course open to both graduate and qualified undergraduates in public health, nursing, pre-med, medical and health sciences.

Field Expeditions and Exercises

- Visit Maasai villages & group ranches, local health clinics & dispensaries, HIV/AIDS clinics, and Amboseli National Park.
- Learn about the historical, socioeconomic, cultural, environmental, political, and health aspects of life in Kenya.
- Assess and analyze health issues and report findings and recommendations to key stakeholders and communities of interest.

Visit www.fieldstudies.org for a complete description of this program and to take a virtual tour of our field station.





Safety is a Priority

Any educational experience, whether attending a college or university in the United States or studying abroad, carries with it inherent risks. These could include injury, illness, or even death.

SFS continually strives to create an outstanding safety strategy. We begin by surveying the hazard landscape based on where we operate and the activities in which we engage our students. We have in house expertise with a full-time Safety Director and a full-time Safety Program Specialist whose primary responsibilities are to oversee the SFS Safety Program. We are one of the few study abroad organizations to provide all of our field staff with emergency medical training (minimally a 36 hour Wilderness Advanced First Aid course). Also, each Center has a Student Affairs Manager (SAM) whose primary responsibility is program safety, which includes oversight of all SFS safety systems, educating the students in risk management, facilitating the student community, and providing support for each student. Each SAM is required to have a current certification as a Wilderness First Responder (72 hours of medical training). We have Risk Assessment Management Plans in order to anticipate and prevent incidents. We have contingency plans in place to respond to incidents should they occur. We have excellent communications systems including a satellite phone at each of our Centers. We have excellent information acquisition and 24/7 phone coverage for the field. We conduct regular internal safety reviews. Besides our training requirements and staffed positions, we also have a Safety Advisory Group comprised of experienced professionals with medical, international, and risk management expertise.

Highlights to the SFS Approach to Program Safety and Risk Management:

- Safety Director: a full-time professional focusing on systems creation, training and consulting.
- Safety Program Specialist: full-time professional focusing on the day to day coverage of the field.
- Student Affairs Manager (SAM): each field station's SAM is responsible for promoting safety in our programs through the ongoing presentation of a risk management and judgement curriculum. This includes an overview of all local risks and the review of a number of case studies. Part of their goal is to foster intercultural competence to assist our students in their navigation of an unfamiliar environment. The SAM also serves as the primary on-site medical person.
- Excellent information acquisition.
- Excellent communications systems including satellite phones at each Center.
- 24/7 phone coverage support for the field.
- Training: all field staff are provided with a Wilderness Advanced First Aid course (36 hours of emergency medicine); SAMs are required to have a minimum of a 72 hours Wilderness First Responder.
- Safety Advisory Committee: comprised of experienced professionals with medical, international, and outdoor program expertise.

EXPECTATIONS & RESPONSIBILITIES

STUDENT CONDUCT

Students are expected to conduct themselves in a mature and responsible manner.

The School for Field Studies reserves the right to require any participant to withdraw from any program at any time if the field station staff deem the student's conduct to be detrimental to or incompatible with the interest, harmony, comfort, safety, or welfare of the program — including abuse of alcohol or use of drugs not authorized by a medical doctor, or uncooperative or disruptive behavior. Students who are expelled or depart early from the program will be withdrawn from all courses and will not receive credit.

RESPONSIBILITY

In organizing and managing these programs, SFS, its agents, employees, and staff shall not be liable, financially or otherwise, for among other things, non-performance or unsatisfactory service; injury to persons including death, loss of, or damage to property; for accident or delay; and/or expenses arising from strikes, weather, quarantine, sickness, government regulations; or from any act or omission of its agents, contractors, and/or airline, railroad, bus company, automobile rental agency, hotel, or other suppliers of service.

SFS is a charitable corporation located in Salem, Massachusetts, U.S.A. All matters relating to, arising out of, or involving in any way your relationship with SFS shall be governed by Massachusetts law and any legal dispute shall be determined by a Massachusetts court. SFS reserves the right to refuse any applicant admission to any program if s/he is deemed unsuited for the program for any reason and at anytime during the admissions process. All courses, fees, and dates are tentative until verified and confirmed in writing by SFS.

PROGRAM CHANGES

SFS operates in a variety of environments. As a result, there are various factors that may have an effect on a program such as tenuous weather conditions, access to highly regulated and sensitive environments, or changes in political conditions. SFS reserves the right to make changes before or during a program. Indeed, part of your challenge lies in adapting to changing conditions and overcoming the obstacles they may present.

Faculty Profiles

KENYA

Center for Wildlife Management Studies

SIMON K. OLE SENO, PH.D., CENTER DIRECTOR
Wildlife and Fisheries Science, Minor in Cultural Anthropology, University of Arizona
Seno went to school when most Maasai did not — he was not a good livestock herder. Seno obtained a B.S. in Range Science and an M.S. in Wildlife Ecology at New Mexico State University and his Ph.D. from the University of Arizona. He worked for the Kenyan government for over 7 years and taught at Moi University for more than 15 years. Seno has traveled extensively in Zambia, Zimbabwe, Botswana, Namibia, and Uganda to study human-related conservation problems. While most of Seno's training is in wildlife ecology and management, his recent focus is on human dimensions in natural resource conservation.

MOSES MAKONJIO OKELLO, PH.D.

Wildlife Ecology and Management, University of Alberta (Canada); M.Sc., Wildlife Resources, University of Idaho
B.Sc., Wildlife Management, Moi University
Okello's research interests include wildlife conservation and ecology, human/wildlife interactions, the role of traditional institutions and roles in resource conservation, spatial wildlife distributions and influence of land uses on this distribution, and application of both GIS and biostatistical techniques in natural resource research.

JOHN WARUI KIRINGE, PH.D.

Wildlife Ecology and Conservation Biology, University of Leicester (U.K.)
Kiringe's dissertation research work was conducted in Hell's Gate National Park (Kenya) and adjoining private ranches, where he looked at population dynamics and habitat preferences of large mammalian herbivores. He also examined range primary productivity and the impact of livestock and wildlife on range condition. His research work has mostly focused on the value and conservation status of ethno-medicinal and other valuable tree and shrub species in a communally owned Maasai Group Ranch situated in the larger Amboseli Ecosystem.

SALATON TOME, M.PHIL.

Environmental Studies, Human Ecology, Moi University
Specializing in human/wildlife interaction, Tome has worked and carried out consultancies for international organizations such as the World Wide Fund For Nature and Pact/USAID on issues ranging from traditional mechanisms of managing natural resource conflict to sustainable development. Tome is a member of the Maasai community and hails from Narok district, which is home to the world famous Maasai Mara Game Reserve.

AUSTRALIA

Center for Rainforest Studies

RAY SCARLETT, M.B.A., M.E., CENTER DIRECTOR
Queensland University of Technology and University of Southern Queensland

TIMOTHY CURRAN, PH.D.

Plant Ecology, Plant Ecology, The University of New England, (Australia)
Tim's research interests include functional ecology, evolutionary ecology, biogeography, and restoration ecology. He is particularly interested in how plant functional traits (such as wood density) can be used to understand how rainforest plants survive disturbances such as cyclones and drought. Tim has broad experience in natural resource management, having served as the scientific representative on committees established to conserve vegetation in northern New South Wales and to manage koalas and their habitat at Port Stephens in New South Wales.

DAVID MANAHAN, PH.D.

Social Sciences (Geography, Environmental Studies, and Education), University of California, Davis (USA)
For the past decade, David has primarily been teaching Environmental Science and Geography courses at various institutions. During this time, his research focus shifted from the natural sciences (runoff and revegetation in the Lake Tahoe Basin; old growth forests in Minnesota) to the social sciences (socio-cultural dimensions behind environmental and geographic awareness; community service as pedagogy). Australia research focuses on the perceptions and economics of rainforest conservation and the human-animal nexus.

SIGRID HEISE-PAVLOV, DR. RER. NAT.
Ecology, Martin Luther University (Germany)

Sigrid's career began in Germany working on pest rodents, biological methods of pest control and biodiversity assessments. During post-doctoral fellowships in England and Belgium she worked on chemical communication of vertebrates. Sigrid immigrated to Australia in 1998. Living in the tropical lowland rainforest in NE Queensland, she did conservation management, research on feral pig ecology and developed restoration projects. Since 2006 she has been Associate Lecturer on Australia's biogeography and nature conservation strategies at German universities, conducting field excursions across Australia and organizing research projects for students.

COSTA RICA

Center for Sustainable Development Studies

GERARDO AVALOS, PH.D., CENTER DIRECTOR
Biology, University of Missouri-St. Louis
Gerardo was trained in the physiological ecology of tropical lianas and worked on the canopy crane set up at the Smithsonian Tropical Research Institute in Panama. His current research interests include the response of tropical montane forests to global warming, the biomechanics of woody palms and the ecophysiology of tropical lianas, among many others. He has taught at the University of Costa Rica, EARTH University, and ACM.

JOSE EDGARDO AREVALO, PH.D.

Resident Ecologist, University of Lausanne, Switzerland
After completing his Master's degree, Jose returned to Costa Rica where he worked as the head of the research program at Monteverde Conservation League for seven years, coordinating sustainable development projects. In 2001, Jose Edgardo obtained a Ph D grant from the University of Lausanne to conduct research on the effect of habitat fragmentation on forest-dependent birds and landscape ecology in the Monteverde area. He is currently working on the long-term bird monitoring program of Carara National Park, and road impacts on wildlife.

ACHIM HÄGER, PH.D.

Natural Resources Management
University of Göttingen, Forestry Sciences
Achim's interests are focussed on the effects of climate and topography on the composition and dynamics of tropical cloud forests. He has done extensive work in Monteverde, and has substantial experience teaching for undergraduate programs. Before joining SFS in 2008, he worked as instructor for the Organization for Tropical Studies' USAP program, and as coordinator of the course "Fundamentals of Tropical Biology" and "Tropical Biology: An Ecological Approach."

SERGIO MOLINA, PH.D.

Environmental Economics, Natural Resources Science and Management with track in Economics, Policy, Management & Society, University of Minnesota.
Sergio's area of interest includes corporate environmental management and marketing, business and climate change, the marketing and management of forest products, and issues around social responsibility of corporations. Dr. Molina has worked for the National University of Costa Rica, the Costa Rican National Forestry Office, the University of Minnesota, and 3M™ Corporation.

MEXICO

Center for Coastal Studies

GUSTAVO HINOJOSA ARANGO, PH.D., CENTER DIRECTOR
Marine Ecology, Queen's University of Belfast, (Northern Ireland)
Gustavo has taught undergraduate (Vegetal Physiology and Introductory Biology) and postgraduate modules (Coastal Ecology and Coastal Management) both in Mexico and the United Kingdom. In addition, he demonstrated different undergraduate modules such as Introductory Biology, General Biology, Biodiversity, and Marine Ecology at the Queen's University of Belfast. Gustavo has extensive research experience and he has participated in numerous projects that include research with marine mammals, marine plants, and invertebrate communities.

HÉCTOR PÉREZ-CORTÉS, PH.D.

Marine Biology, Center for Marine Sciences of the National Polytechnical Institute
Hector has worked on research and management projects for several species of marine mammals and migrating waterfowl. In addition, Hector has experience developing non-consumptive use alternatives for marine resources (such as whale watching and photographic tours). Most recently, Hector has worked for the Mexican government in a research position where he has developed natural resource policy, made management decisions, provided advice to political decision makers, and built links with research and conservation agencies in Mexico.

TURKS & CAICOS ISLANDS

Center for Marine Resource Studies

JOHN A. B. CLAYDON, PH.D., CENTER DIRECTOR
James Cook University (Australia)
John conducted his Ph.D. work on spawning aggregations of coral reef fishes in Papua New Guinea. During his time in Papua New Guinea, he found spawning aggregations of over 40 species, 12 of which had not been documented spawning in aggregations previously. He was also involved in a number of local conservation initiatives including the development of monitoring protocol for protected reefs, coral bleaching monitoring, and teaching a marine environmental education program to Papua New Guinean high-school students.

RICHARD PLATE, PH.D.

University of Florida
Richard's work is focused on how people perceive and value the environmental systems that support them. His PhD work evaluated the value of systems-oriented education as a method for increasing individuals' abilities to comprehend complex environmental systems. Other projects have included an audit of waste management operations in the Fiji Islands, a study on public perceptions in the southeastern US of using woody biomass to produce electricity, and a survey of public uses and preferences regarding lakes in Alachua County, Florida. Richard's work in the Turks and Caicos Islands (TCI) focuses mainly on three areas: public perceptions of the impending tourism development; fishers' opinions and knowledge of local fisheries; and local awareness of TCI's waste management challenges and the implementation of alternative strategies.

CATHERINE JADOT PH.D.

Marine Biology, University of Liege (Belgium) PhD;
Oceanography, University of Liege (Belgium), M.Sc.;
Biology, University of Louvain-La-Neuve (Belgium).
Catherine's most recent experience was with the Reef Ball Foundation (RBF) as Marine Biologist, where she restored coral reefs and mangrove ecosystems in the Caribbean. Prior to her employment with the RBF, Catherine was working with the World Wildlife Fund, responsible for fund raising, team management and increasing public awareness about the organization. She also served as a Marine Biologist Consultant assessing Dubai's environment. Catherine's PhD focused on spard fish behavior in the Mediterranean Sea. She did a post-doc on a Marine Protected Area at the University of the Azores, Portugal.



KENYA

FOOTHILLS OF MT. KILIMANJARO

SEMESTER PROGRAM DATES

Spring 2009: January 30 – May 6

Fall 2009: September 4 – December 10



Wildlife Management Studies

ENVIRONMENTAL ISSUES

Conflict between human and wildlife habitat needs is at a critical juncture in Kenya. Urban, industrial, and agricultural expansion and a soaring population increasingly threaten the habitat and resources required by Kenya's wildlife. In turn, the culture, viability, and well-being of traditional, nomadic peoples such as the Maasai are challenged. Lion, elephant, giraffe, rhino, monkey, zebra, and other indigenous wildlife are the country's most famous and economically valuable resource, the result of a well-developed global tourism industry. But today, the rangelands where wildlife and pastoralists previously interacted freely and peacefully are now places of rapidly escalating human/wildlife conflicts and intensifying resource competition. Land, water, pasture, and open space are diminishing every year, posing great challenges to wildlife and environmental conservation. Nomadic peoples, including the Maasai (and the cattle herds they depend upon), are being confined to smaller plots of land, resulting in overgrazing and rangeland degradation. Further, the wildlife, which has co-existed for centuries with these non-hunting peoples, are now not only seen as competitors, but are themselves intensely persecuted through illegal practices such as snaring for bush meat trade. Threats to wildlife in dispersal areas outside protected zones are many, but even in protected areas where they seemed safe, negative impacts of tourism, administrative decisions, habitat restriction, and poaching are endangering biodiversity.



LEARN FIELD RESEARCH SKILLS AT THE BASE OF MT. KILIMANJARO AND IN WORLD-FAMOUS NATIONAL PARKS

Live in close proximity to wildlife and local Maasai communities on an African savanna. Learn top-notch field research skills, how to speak Swahili and about East African tribal culture. Explore human/wildlife conflicts from the perspective of the Maasai and park managers. Research ways to preserve traditional Maasai culture and wildlife viability. Conduct research in three distinct geographical regions at various stages of development.



OUR FIELD STATIONS IN KENYA

Kilimanjaro Bush Camp is located southeast of Nairobi in the foothills of Mt. Kilimanjaro, bordering a spring-fed river. Adjacent to the river is a lush zone of yellow Acacia trees with clear undergrowth giving a perfect view of the magnificent vegetation mosaic. Our **National Park Camp** is on the southern border of Nairobi National Park. The combination of rocky outcrops, bushland, and open grassland support amazing biodiversity. From the plateau above the camp, one can spot giraffe, buffalo, rhino, zebra, cheetah, lion, and even leopard.

At both camps, students sleep in thatched-roof bandas, with a main building, or chumba, which houses a dining room, kitchen, classroom, and library. Additional facilities include a duka (shop), bathrooms, and open-air showers.



Kenya Program Description

OUR RESEARCH

The Amboseli-Tsavo ecosystem is a completely open, unfenced national park where wildlife and humans interact and compete for space and resources. Nairobi National Park is a partially fenced ecosystem and Nakuru-Hellsgate is a completely fenced park. Students will conduct research in each of these three parks, at their respective stages of development, to help provide insight into the relative success of each system. Student research will also help determine what lessons can be learned from the management of Nairobi National Park and Nakuru-Hellsgate to help the Amboseli-Tsavo ecosystem in maintaining its integrity while simultaneously promoting sustainable cohabitation between human communities, wildlife, and other natural resources.

The diverse habitat surrounding our Kilimanjaro Bush Camp (KBC) is used by wildlife as a migration corridor between Tsavo, Chyulu Hills, and Amboseli National Parks. The Maasai, and now other settlers, depend upon this same area as a communal grazing zone for livestock as well as for growing food. As a result, they often face economic hardship due to crop damage from migrating

wildlife, loss of livestock, and resource depletion. The KBC research is framed by the needs of dispersing and migrating wildlife between the wildlife dispersal areas of Amboseli National Park on the west and Tsavo West-Chyulu Hills National Parks in the east. Research questions center on issues related to the conflicts between wildlife, livestock, and humans in the group ranches that occupy the spaces between the protected areas, and the changing human community and land-use patterns of non-Maasai cultivators and Maasai livestock herders.

Students gather data on wildlife conservation among resource-constrained communities – a critical first step in developing integrated land-use strategies that will enable residents to derive optimal benefits from their land and forestall additional fragmentation of key wildlife areas.

While based at our National Park Camp, student research focuses on the needs of the wildlife, which are protected while in the Park, but not in the dispersal area, and the needs of the people, who are excluded from the Park but are exercising their rights as landowners to settle and cultivate, or

develop industry on their land in the dispersal area. This increased development around Nairobi National Park threatens its biological integrity and has led to the precipitous decline of large mammal populations.

Pollution and climate change threaten the already strained water supply and the health of numerous birds and animals. Increased human and livestock populations in areas surrounding the park are leading to intensified conflicts, including disease, predation, and destruction of crops by migrating wildlife. The inevitable encroachment on Nairobi National Park is stimulating intense debate as to whether the best way forward is simply to fence off the Park from the dispersal area, such as was done with Lake Nakuru National Park, leaving the wildlife trapped inside, but at least giving better protection to the Park and its wildlife.

SFS students assist the Kenya Wildlife Service with studies in the following areas: vegetation mapping; grazing and browsing impact surveys; large mammal population counts and distributions; educational facility upgrades; and human impact on the park.

Field Research, Lectures, Exercises, and Skills Development

Field expeditions might include:

- Amboseli elephant research: students learn elephant ecology and wildlife management techniques through recording elephant sightings, collecting census data, understanding ecological keystone and tourism flagship roles, and examining human/elephant conflicts.
- Lake Nakuru National Park and Hellsgate: world-famous for its flamingos, also an important sanctuary for rare birds, black and white rhino; huge herds of waterbuck, zebra, and buffalo; endangered Rothschild giraffe; prides of lion; and leopard. Examine ramifications of an enclosed ecosystem on wildlife biodiversity.
- Manyatta: rare opportunity to glimpse Maasai culture, including rural settlements not usually visited by tourists. Maasai women musical ceremonies, demonstrations in fire-making, dances by Maasai morans (warriors), and lessons in spear throwing.

COURSES

Semester students are registered in five academic courses accredited through Boston University:

Course No.	Name	Credits
BI/EE(NS) 371	Techniques in Wildlife Management	04
BI/EE(NS) 372	Wildlife Ecology	04
EE(SS) 302	Environmental Policy and Socioeconomic Values	04
EE 491 or 492	Directed Research	04
LE 205E	Introduction to Swahili Language and East African Tribal Communities*	02

See page 26 for course descriptions.



***Introduction to Swahili Language and East African Tribal Communities (LE 205E),** offers listening, oral, and written practice of Swahili at the beginner level of proficiency. This training will enhance student communications with Maasai, and increase the immersion experience. The socio-cultural module helps students develop a more refined understanding of East African tribal culture and our community partners.

- Amboseli and Tsavo National Parks: multi-day excursions illustrating the management implications of high concentrations of animals in a confined area. The impact of the elephants, whose trumpeting punctuates the night, are clearly visible by daylight.
- Sample of field research skills development: habitat assessment and mapping; species identification; data recording/analysis; cost/benefit analysis; valuation methods; census of populations; mark and recapture techniques; research mapping; GIS; transect and patch sampling; animal behavior observations; radio tracking; geology and soil identification.

Student Directed Research Project Examples

- Large mammal dispersal corridors and dispersal areas: human activities and structures causing contraction of wildlife dispersal area, and implications for neighboring protected areas such as Amboseli National Park.
- Impact of humans and large mammals such as elephants on plant communities in group ranches and implications of these on wildlife conservation and human livelihoods.
- Human population growth and structure, their distribution and use of resources, and implications of these on wildlife conservation in communal Maasai rangelands.
- Subdivision of the Maasai group ranches and their implication on land-use and wildlife conservation.

Student Research Contributions

- Collaboration between Kimana Group Ranch members on a proposal to European Union through the Community Development Trust Fund entitled Kimana Community Water Resource Conservation. The main objective of the project is to enhance water use and management of water catchment areas while improving local livelihoods.
- Collaboration between the Amboseli Elephant Research Project and SFS on a proposal to US Fish and Wildlife (USFW), entitled "Mitigating

Human-Elephant Conflict in the Amboseli Ecosystem, Kenya" resulting in USFW funding the project for three years (with additional contributions from Born Free and the International Fund for Animal Welfare).

- Feasibility study for the establishment of another Maasai-owned wildlife sanctuary in Kuku Group Ranch. Student research has become the basis for a funding proposal to establish a new sanctuary, and in 2005, the group ranch members voted to establish the wildlife sanctuary and seek funding.
- Socioeconomic impacts assessment of the Kimana Wildlife Sanctuary.

Get Involved with the Local Community

Above all else, we seek to give back to our host communities around the world. Understanding community views on wildlife, the challenges faced, and management policies employed by park managers is central among our research goals. Students have many opportunities for social interaction as well, including:

- Presentations of research findings to community stakeholders.
- Visits to local markets and a neighboring boma (Maasai homestead) for traditional Maasai celebrations, a lecture on culture and artifacts, jewelry making with Maasai mamas, and to conduct interviews for research work.
- Community service work in local schools, hospitals, orphanages, and with a local women's group.
- Visits to an elephant orphanage and a giraffe center.

Program Prerequisites

Applicants for semester programs must be at least 18 years of age, in good academic standing, and have completed at least one college-level ecology or biology course and at least one semester of college prior to the start of the program.



SFS AT WORK

Kimana Group Ranch, which encompasses more than 6,000 square km within the Tsavo-Amboseli ecosystem around Mt. Kilimanjaro, is a property communally owned by a group of Maasai families, which they use to graze their livestock. Recently, however, non-Maasai migrants have established permanent agricultural fields around the Ranch's important wetland areas. As a result there have been increasing conflicts over water resources, not only between pastoralists and agriculturalists, but also between wildlife and livestock. There is a clear link between environmental degradation and poverty. Water scarcity and contaminated water both lead to hunger and illness, which not only results in a health care burden on a community, but also makes it difficult for laborers to work and children to study, thereby reducing productivity.

Dr. John Kiringe of SFS, who has a strong relationship with local Maasai communities, collaborated with Noomayianat Community Development Organization (NCDO) in Kenya to secure funding from the European Union's Community Environment Facility to implement the Kimana Community Water Resource Conservation Project, which includes rehabilitation of degraded water catchment areas to improve water quantity and quality through tree planting, soil erosion control, and protecting water springs by fencing; constructing new and rehabilitating existing water distribution canals; capacity building for the community through outreach and education; and developing systems for domestic water harvesting through installation of earth dams and storage tanks.



COSTA RICA

ATENAS

SEMESTER PROGRAM DATES

Spring 2009: February 2 - May 6

Fall 2009: September 7 - December 10



Sustainable Development Studies

ENVIRONMENTAL ISSUES

While Costa Rica is internationally recognized for its efforts to ensure biodiversity and protect natural resources, the country has experienced significant resource degradation linked to population growth, industry, and development – all of which threaten to ruin this tropical paradise, and in turn, economic opportunities. The country supports more than 5 percent of the world's biodiversity and boasts 230 different protected areas (about 26 percent of the country). The cloud forests, rainforests, volcanoes, and the mountain plains shelter as many as 6,000 plant species, including at least 1,000 species of orchids alone. More than 500 species of butterflies and over 800 bird species, such as quetzals, toucans, hummingbirds, and scarlet macaws, are found throughout Costa Rica's various tropical ecosystems. The magnificent beaches bordering both coasts are among the world's largest known nesting sites for sea turtles.

Costa Rica is undergoing rapid and largely unplanned development in agriculture, tourism, and real estate. These areas host major habitats and watersheds of critical importance to the integrity of natural ecosystems and the health and well-being of residents. The research agenda for Costa Rica is about understanding the natural environment and socio-economic conditions in which these rapid environmental and economic changes are occurring. We focus on the question of how to maintain biodiversity in the face of competing land uses, such as urban growth, tourism infrastructure development, and large-scale agriculture. We examine the theoretical and practical approaches to sustainable development, the conditions for and obstacles to success, and the effects of the current development trajectory on ecosystems and communities. Our goal is to ensure that Costa Rica's world-famous biodiversity is preserved and continues to provide ecological and economic benefits to local people, the nation and the world.



EXPLORE COSTA RICA'S INCREDIBLE BIODIVERSITY AND UNIQUE ECOSYSTEMS

Study tropical ecology, economics, and socio-cultural issues related to the natural resource management challenges in world-renowned protected areas. Learn professional level field research skills and work with local Costa Rican park rangers, farmers, and top environmental officials to understand the challenges of maintaining the biodiversity of the country. Travel to Nicaragua on a field expedition. Become a member of the friendly community of Atenas and sharpen your Spanish conversation skills.



OUR FIELD STATION IN COSTA RICA

The Center for Sustainable Development Studies is a small farm on a hillside with spectacular views overlooking the Rio Grande River in the fertile Central Valley. The field station includes a large house, an outdoor classroom, an organic garden, a patio, and pool. Students live in a dormitory (up to four to a room) with bathrooms. There is a classroom, small laboratory, and a library/computer room with Internet access. The field station is part of the small neighborhood of La Presa/Los Angeles. The friendly town of Atenas is a short walk from the field station while Costa Rica's tropical forests, beaches, mountains, and volcanoes are within a day's travel.



Costa Rica Program Description

OUR RESEARCH

Costa Rica is currently undergoing a period of rapid economic and social change. As this resource-rich, wonderfully biodiverse country continues along a path of rapid development, it is increasingly influenced by global policy such as the Central American Fair Trade Act (CAFTA) and foreign markets. Costa Rica’s economy has shifted from one predominately based on agriculture to one driven by ecotourism and technology exports. At the same time, brisk population growth is straining natural and developed resources. The country is at a critical juncture as resource management decisions are being made in an effort to keep pace with competitive global markets. Our goal is to study different development and resource management models that protect the biodiversity of Costa Rica’s ecosystems while promoting socioeconomic benefits for its people.

Students will examine the effects of globalization on classic development issues such as agro-ecology, biodiversity protection, economic

development, urban sprawl, population growth, waste management, and water resources. Students focus on evaluating the success of Costa Rica’s world-renowned land and biodiversity management systems and developing alternative strategies for economic development and biodiversity conservation, such as land use planning, organic agriculture, and conservation outside of protected areas. Visits to cloud forests, dry forests, volcanoes, lowland rainforests, and plantations offer opportunities to examine management schemes, identify the benefits of protected areas, and determine which systems offer the best option for economic development, the maintenance of cultural norms, and the preservation of biodiversity. Understanding the forces that are driving Costa Rica’s policies as well as those driving change will be key as students analyze potential solutions for Costa Rica, and throughout the Central American region.

Field Research, Lectures, Exercises, and Skills Development

The interdisciplinary curriculum informs students about the links among natural ecosystems and social and economic systems in Costa Rica. Courses in ecology, environmental economics, resource management, and language and culture lay the groundwork for research on sustainable development issues. Field trips introduce students to a diversity of ecosystems and social conditions. Possible trips include:

- Nicaragua: extended field expedition to compare and contrast development and resource use issues between the two countries.
- Camping trips to explore rare and threatened tropical dry forest ecosystems in Guanacaste Province to Palo Verde or Santa Rosa National Parks, one of the most sustainable management models for protected areas in Latin America.
- Volcanoes: visit Poas and Arenal National Parks to investigate parks and people relations and the pressures of ecotourism on small gateway communities. Learn about volcanoes and cloud forest ecology.
- Braulio Carrillo National Park: learn about bioindicators of ecosystem health and rainforest ecology.
- Carara National Park: develop management policies by continuing our long-term bird monitoring program and analyzing the impact of the road as a barrier and source of mortality for the park’s fauna.
- Monteverde Cloud Forest: visit the largest private reserve in Latin America initiated by donations and explore the difficult dynamics of private and public preservation policies and the impact of heavy tourism.
- Rincón de La Vieja National Park: camping trip to the cloud forest and volcanic mud piles.

Students develop field research skills in data recording and analysis, ecological sampling techniques, population sampling of birds and butterflies, rapid rural appraisal, habitat assessment and mapping, species identification, infrastructure assessment in protected areas, ecotourism, visitor perception, interview techniques, and statistical analysis.

COURSES		
Semester students are registered in five academic courses accredited through Boston University:		
Course No.	Name	Credits
EE(NS) 377	Tropical Ecology and Sustainable Development	04
EE(SS) 303	Economic & Ethical Issues in Sustainable Development	04
EE(NS) 374	Principles of Resource Management	04
EE 491 or 492	Directed Research	04
(LS) 205E	Language, Culture, and Society of Costa Rica*	02
See page 26 for course descriptions.		



"I am immersed in the issues, talking with real people, working on solutions for an ecologically, socially, and economically sustainable future. The more I learn, the more I realize that I need to learn more. For every question answered, I find several more waiting to be asked."

GARRETT MEIGS, CORNELL UNIVERSITY

Student Directed Research Project Examples

- Development of an agroforestry system to plant *Euterpe precatoria* in small forest patches with communities surrounding the national parks.
- Impact of illegal extraction of heart of palm on the population growth of *Euterpe precatoria* and development of sustainable use alternatives.
- Long-term monitoring program of the avifauna of Volcan Poas National Park. Analysis of the impact of poaching on bird diversity and distribution.
- Long term monitoring of the effects of international policies on agro-ecology systems.
- Management practices of Carara National Park in the face of increased tourism.
- Evaluation of the socioeconomic benefits between Costa Rica's national parks and its surrounding communities.
- Impact of road noise on the Avifauna of Carara National Park.

Student Research Contributions

- Presentation of our research results and proposed model of development at a meeting of the Costa Rican Ministry of Energy and Environment.
- A 5-year agreement extension between the National System of Conservation Areas of Costa Rica (SINAC) and SFS.
- Visitor services and expectations for Nicaragua's national parks.
- Environmental waste management and recycling education programs.
- Evaluating and making recommendations for an environmental education program piloted at an elementary school in a community surrounding Volcan Poas National Park.
- Developing and monitoring water quality indicators for Braulio Carrillo National Park.
- Completion of the Management Plan of the Cerro Atenas Protected Zone: evaluation of the ecological status of freshwater springs.

Get Involved with the Local Community

Community needs are the impetus behind our research goals. Conversations and collaborations with local residents, small business owners, and farmers to better understand their perspectives and needs provide the framework for SFS research plans. Activities might include:

- Monitoring and maintaining trail infrastructure at the Municipal Forest with the local high school, ministry of agriculture, and municipality.
- A full Spanish presentation of the results of the research conducted during the semester to government agencies.
- Long-term community projects: U.S. culture and English taught in the elementary school, and trail management and construction in the Municipal Forest.
- Soccer games, community festivals, and short home stays.

Prerequisites

Applicants for semester programs must be at least 18 years of age, in good academic standing and have completed at least one college level course in ecology or environmental studies, and are encouraged to have taken coursework in statistics, international development, economics, or anthropology. Students must have completed at least one college level course in Spanish prior to participating.

Applicants for summer programs must be at least 16 years of age, in good academic standing, and have completed at least their junior year of high school prior to the start of the program. See page 28 for summer program information.

***Language, Culture and Society of Costa Rica (LS) 205E** offers listening, oral, and written practice of Spanish at beginner, intermediate, and advanced levels of proficiency. Written grammar and vocabulary exercises help students develop Spanish language skills and tools required for their course work and research projects. The socio-culture module helps students develop a more refined understanding of Costa Rican culture.



SFS AT WORK

Illegal extraction of heart of palm from Costa Rica's national parks has been very extensive and may lead to its eventual extinction. In partnership with the Costa Rican Ministry of the Environment (MINAE), SFS students implemented a full-scale evaluation of the consequences of poaching as well as the driving forces behind it. Student research data has been used by MINAE to determine the status of heart of palm within national parks, as well as to develop sustainable cultivation of the species in plantations or agroforestry systems.

This research has led to a collaboration between SFS and El Zota (a small rural cooperative of families engaged in alternative, sustainable rainforest management) to expand the heart of palm project to small fragments owned by rural families around national parks. By interacting with El Zota, SFS is triggering the interest of local farmers on wild heart of palm cultivation to reduce extraction from public lands. El Zota is now able to better manage its forests, facilitate the marketing of their products, and increase their capacity to receive and educate visitors.

SFS is also working with the officials of Carara National Park to update their visitor management plan. Students and faculty initiated a long-term bird monitoring program examining the distribution and abundance of bird species throughout the Park, identifying those that could serve as bioindicators of habitat quality and/or of special interest to visitors.



MEXICO

BAHÍA MAGDALENA

SEMESTER PROGRAM DATES

Spring 2009: February 2 - May 6

Fall 2009: September 7 - December 10



Conserving Marine Resources & Coastal Ecosystems

ENVIRONMENTAL ISSUES

Touted as Earth's "final frontier," humankind has historically treated the ocean as a source of nearly limitless resources. Today, we know better the limits of this wilderness. Bahía Magdalena is one of the largest remaining and relatively intact coastal wetland/lagoon systems along the Pacific coast of the Americas, and one of the world's most important habitats for California gray whales and several species of endangered sea turtles. Extensive sea grass beds and mangrove stands, intertidal sand and mudflats, barrier islands, and large rocky shore areas make for outstanding richness of biodiversity. Given its complexity, Bahía Magdalena is also a delicately balanced ecosystem, sensitive to anthropogenic pressures, including climate change.

The Bay is an important feeding ground and nursery area for East Pacific green turtles, and olive ridley, hawksbill, and the rare loggerhead turtles are sometimes seen. The area is home to pods of bottlenose dolphins and large groups of sea lions. Over 100 species of migratory and resident birds use the Bay at various times of the year. Bahía Magdalena is one of the three most important calving areas for the entire California gray whale population, and hundreds of these animals can be found here between January and April.

Bahía Magdalena has also played a critical role in supporting its human residents. A growing tourism industry, based on whale watching, provides income for many residents, and fishers ply the waters for commercially important species. Unfortunately, critically endangered sea turtles are caught as by-catch in some of these fishing operations, or they are fished for human consumption as a delicacy.

Most local residents are economically dependent on the Bay's marine resources, yet little research has been done on this ecosystem and sustainable resource use. Due to its high productivity and amazing biodiversity, the World Wildlife Fund has ranked Bahía Magdalena as one of the nine most important coastal habitats needing protection in all of Mexico. There is consensus among researchers and US and Mexican governments that protection of this unique ecosystem is vital, yet it remains under siege by pollution, slack law enforcement, and lack of effective management.



RESEARCH ISSUES CRITICAL TO ENDANGERED SEA TURTLES' SURVIVAL

Learn state-of-the-art field research techniques and coastal ecology. Help the local community protect marine mammals and conserve marine resources. Explore pristine natural habitats ranging from flowering deserts and mangrove-filled lagoons to species-rich marine ecosystems. Get involved with the local Bahía Magdalena community and learn about Mexican culture.



OUR FIELD STATION IN BAHÍA MAGDALENA

The Center for Coastal Studies looks out over beautiful Bahía Magdalena and lies on the outskirts of the fishing community of Puerto San Carlos on the west coast of the Baja peninsula. Bahía Magdalena stretches for 124 miles along the coast with spectacular sunsets draping the mountains of the off-shore islands in orange and purple shadows. Students share four-person cabins. Additional facilities include a computer room, library, classroom, laboratory, kitchen, dining and study areas and a bath/shower house serviced by our artificial wetland waste water treatment system. Faculty live in cabins on site.



Mexico Program Description

OUR RESEARCH

The research agenda at the SFS Center for Coastal Studies is designed to address the broad question of how to promote sustainable development in Bahía Magdalena through biodiversity conservation and natural resource management. Students assess conditions of critical habitats in the bay, such as mangroves and sea grass beds; determine the conservation status of economically important marine resources, such as sea turtles, gray whales, and shellfish; and strive to understand the social, cultural and economic conditions for sustainable development. Students are involved in developing management plans for habitats, species and community development.

Our unique location on the Pacific coast allows students in the spring semester to work directly on gray whale conservation research, while intensive research is carried out on sea turtles in the fall and summer. Sea turtles have economic, cultural and ecological importance in the region. Despite strong regulations against their exploitation, green turtles are still frequently poached for their meat and are

tangled in fishing lines and nets. A complex interaction of community social and cultural factors, lack of protected area sanctuaries and enforcement of existing regulations, and economic hardship in local communities has lead to the continued exploitation and the rapid decline of sea turtle populations throughout Mexico. Students gather data on the condition of the habitats of the Bay that are critical to the turtles' lifecycle, monitor the demographic and behavioral characteristics of turtle populations, and gain more insight into the role of the turtle in the social, cultural, and economic lifestyle of the local community. Student research, in partnership with the local community and conservation groups and governmental agencies, is contributing to the development of a conservation and management plan for sea turtles.

Socioeconomic research is conducted year-round on conservation and development issues in this small fishing village. Findings over the past several years indicate a lack of social capital in the fishing community in Puerto San Carlos. Students are

tasked with helping to find new and more efficient ways for economic development in the town while maintaining the cultural and environmental integrity of the region. Students will determine the economic make-up and development capacity of the population in Puerto San Carlos, examine the local plans for development, and develop economic development strategies with local stakeholders.

SFS students learn professional field research skills as they interview fishermen, explore changes in fishing technology, and collect and analyze catch data as part of our efforts to help regulators and harvesters develop more sustainable management strategies for the fisheries of Bahía Magdalena.

Field Research, Lectures, Exercises, and Skills Development

- Research expedition to Puerto Magdalena Island to learn about the fascinating culture of a small, communal fishing cooperative.
- Field exercises at the Bay's fishing grounds to practice and learn about fisheries such as blue crab and scallops.
- Field expedition to intertidal zones of Bahía Santa Maria to illustrate the incredible diversity of local marine life.
- Camping trips to offshore islands to explore the area's rich biodiversity, stark dunes, and pristine white beaches.
- Collecting GIS data for projects that in turn will help the local government, fishers, and tourism operators to design community-supported marine protected areas.
- Visit to three different natural protected areas in the state of Baja California Sur; day trips to various reefs, deserts, oases, and mangroves.
- Field research skills development: transect and patch sampling; data recording and analysis; qualitative data techniques; cost/benefit analysis; valuation methods; habitat assessment and mapping; population/stock evaluation methods; census of populations; mark and recapture techniques; diversity assessments; species identification methods (invertebrates, fish, turtles, birds, marine mammals).

COURSES

Semester students are registered in four academic courses accredited through Boston University:

Course No.	Name	Credits
BI/EE(NS) 379	Coastal Ecology	04
EE(NS) 374	Principles of Resource Management	04
EE(SS) 303	Economic & Ethical Issues in Sustainable Development	04
EE 491 or 492	Directed Research	04

See page 26 for course descriptions.



"I was placed in the middle of a group of extraordinary people from all over Mexico and the United States who genuinely cared about animals and the environment. I am so grateful that I was able to form strong bonds with people whose academic interests varied greatly from mine, but who all still shared a love of learning and exploration."

PATRICIA MARQUEZ, SARAH LAWRENCE COLLEGE

Student Directed Research Project Examples

- Economic benefit and socioeconomic analysis of whale watching in Bahía Magdalena.
- Assessment of the implementation of a sea turtle protected area and monitoring turtle populations.
- Gray whale abundance, distribution, and behavior during breeding season in Bahía Magdalena.
- Regional environmental education model: marine mammals and sea turtles as a tool for involving teachers in curriculum development.
- Analysis of the socioeconomic effects of proposed marine protected areas on local fishers, tourism operators, and the community.
- Development of tourist alternatives to conserve Puerto San Carlos and its environment.

- Socioeconomic analysis of blue crab fishery, providing valuable data to the Puerto San Carlos Office of Fisheries to assist in developing management strategies.
- Sea turtle research leading to increased awareness and stewardship.

Get Involved with the Local Community

Helping the residents of Bahía Magdalena develop long-term natural resource conservation plans while still providing sustainable economic development is our chief concern. In addition to working with local clients and interviewing community leaders, SFS students enjoy getting involved in community volunteer projects and social activities such as:

- Participation in the Puerto San Carlos Gray Whale and Sea Turtle Festivals.
- Teaching English classes for local school children.
- Spanish lessons throughout the program, which help sharpen conversational and cross cultural skills.
- Participation in folkloric dance classes, Mexican holiday celebrations, short home stays, and hosting community events at our field station to deepen students' experience of a different culture and connection with the local community.
- Local sports, community meetings, conservation activities, and environmental education programs for local school children.

Student Research Contributions

Our field station on the Bay has drawn many researchers from Mexico and abroad, involving SFS students in several important investigations and projects, including:

- Hosting a symposium of research organizations active in conserving the Bay to develop collaborations among Mexican and international researchers.
- Water quality analysis funded by The David and Lucile Packard Foundation, which resulted in the development a water quality and green sea turtle monitoring program and alternative disposal recommendations, including the installation of a waste water filtration system at a local cannery that had been seriously polluting the Bay.
- Gray whale population study, which has lead to a safe increase in whale watching permits and better adherence to regulations.
- Management plan for regional sustainable development created by a student-initiated, community-based conservation plan.
- Joint SFS, government, and local fishers' exploration of alternative shrimp net designs to reduce by-catch and destruction of the fragile Bay bottom.

Program Prerequisites

Applicants for semester programs must be at least 18 years of age, in good academic standing, and have completed at least one college-level ecology or biology course and at least one semester of college prior to the start of the program.

Applicants for summer programs must be at least 16 years of age, in good academic standing, and have completed at least their junior year of high school prior to the start of the program. See page 28 for summer program information.

Special note: Due to our community focus and extensive interaction with the people of Puerto San Carlos, applicants are strongly encouraged to develop their conversational Spanish skills in preparation for this program.



SFS AT WORK

Whale watching tour operator Fito Gonzalez has changed the way he conducts business on Bahía Magdalena. Whale watching in Mexico witnessed its most spectacular growth increase in the mid-1990s when it expanded 800 percent. The potential effect of this increased activity on whales is starting to cause concern in the international community. While short-term changes in whale behavior due to tourism activities have been proven (increased swimming velocity, changes in direction and changes in respiratory rhythm), the long-term effects are uncertain. Like other large whales, gray whale numbers were reduced to just a few hundred at two different times. On the other hand, properly conducted whale watching can be an important economic activity (and conservation lesson) today and in the future.

Fito has worked closely with SFS to improve his operation to respect marine life and ensure that he has all the necessary permits to run his business in an ethical manner (something not all operators adhere to). The operational changes he has implemented are a result of SFS students' research findings. As tourism in the area is picking up, Fito and other operators see an ever-increasing need to adopt these changes in order to keep the bay thriving for their businesses.



AUSTRALIA

ATHERTON TABLELANDS

SEMESTER PROGRAM DATES

Spring 2009: February 2 - May 6

Fall 2009: September 7 - December 10



Tropical Rainforest Studies

ENVIRONMENTAL ISSUES

Rainforests are one of the world's most important and diverse ecosystems, yet thousands of acres disappear each day, mostly a result of human activity. Along with the loss and fragmentation of rainforest areas due to practices such as intensive logging and increased farming, global climate change is very likely contributing to accelerating loss of plant and animal species. The potentially devastating effect of climate change is playing out in north Queensland, where models predict a significant rise in local temperatures over the next century that would result in a nearly 50 percent extinction rate among endemic species in affected areas. And because rainforests are so diverse, the threat to this one section of the continent places nearly half of all Australian bird species and endemic mammals at risk.

For thousands of years, the tropical rainforest of Queensland has been home to about 18 indigenous tribes, along with numerous primitive plant species, birds, and marsupials found nowhere else in the world. Giant strangler figs, abundant vines and epiphytes, large pythons, colorful parrots, giant cassowary, bandicoots, and tree kangaroos fill these forests with color, sound, and complexity. Northeastern Queensland's ancient rainforests preserve millions of years of evolutionary history, though sadly, these repositories have been greatly affected by habitat loss, fragmentation, and climate change. The eastern seaboard of northern Australia once supported extensive rainforests, but logging, mining, and agricultural production have destroyed and disrupted rainforest habitats and the traditional land of Aboriginal people. Today, over much of the area, only fragments of the original forests remain.

Australia confronted the threat of rainforest loss much faster than most tropical countries, but the integrity and survival of these rainforests hinge upon developing solutions that consider larger-scale impacts, including global climate change, yet also provide economic benefits for the local community.



RESEARCH IN A TROPICAL RAINFOREST AMID AN AMAZING VARIETY OF UNIQUE PLANTS, BIRDS, AND OTHER WILDLIFE

Work with local tree-planting groups and research organizations and learn from members of the indigenous community to manage forest resources. Learn about the current condition and dynamics of a tropical rainforest ecosystem, including what is happening to this system as a consequence of global climate change. Learn field research skills and participate in community projects to restore tropical rainforests. Explore some of the most exciting natural wonders of Australia.



OUR FIELD STATION IN AUSTRALIA

The Center for Rainforest Studies lies at the end of the Atherton Tablelands in the heart of the traditional land of the Yidinji people. Protected World Heritage forests and farmland surround the rolling, tropical site. A third of the property's 153 acres is mature rainforest within which the student cabins are nestled. Sightings of tropical birds, bandicoots, pademelons, primitive musky rat kangaroo, amethystine pythons, and other unique rainforest species are common. The site is alive with the sounds of the rainforest. Students share comfortably furnished eight person cabins with adjacent shower and bathroom facilities. The main building has a fully equipped computer laboratory, 24-hour internet access, up-to-date scientific library, and a student common room. Our kitchen and cook provide nutritious, healthy menus to suit all tastes.



Australia Program Description

OUR RESEARCH

While representing only a small percentage of the world's rainforest, the astonishing biodiversity of Australia's rainforest and the country's dynamic conservation efforts make Queensland an extraordinary laboratory for studying rainforest management and restoration. Recent cyclones have further damaged the remaining rainforest fragments, raising questions on how to manage these hyper-disturbed areas. Management strategies developed here will likely serve as a model for conserving the rest of the world's tropical rainforests.

The ecological and economic benefits of rainforests are increasingly well-understood, but much less is known about rainforest ecosystem dynamics and the ability to restore a rainforest once it has been cleared. Our goals are to help understand the dynamics of rainforest ecosystems, including potential impacts of global climate change, and in turn develop rainforest restoration strategies that benefit both ecosystems and human communities.

Student research addresses a critical local and regional environmental problem — loss and fragmentation of once extensive rainforests, and the environmental policies that are currently under consideration by the local and Commonwealth governments. SFS staff and students, in collaboration with local landholders and stakeholder organizations, focus on enhancing the condition of tropical rainforests, as well as determining how we should regenerate and restore the rainforest on the Atherton Tablelands. Students learn field research techniques as they collect data on potential responses to global climate change, habitat use and animal behaviors, resilience to cyclonic events, land-use, local resident involvement in restoration projects, and cost effective and ecologically beneficial methods of restoration. Student work represents a vital contribution toward broader studies on global climate change, biological integrity of rainforest fragments, and developing restoration practices to

maximize rates of plant growth and colonization by fauna. Students are actively involved in either rainforest replanting or site maintenance with local landcare groups.

Field Research, Lectures, Exercises, and Skills Development

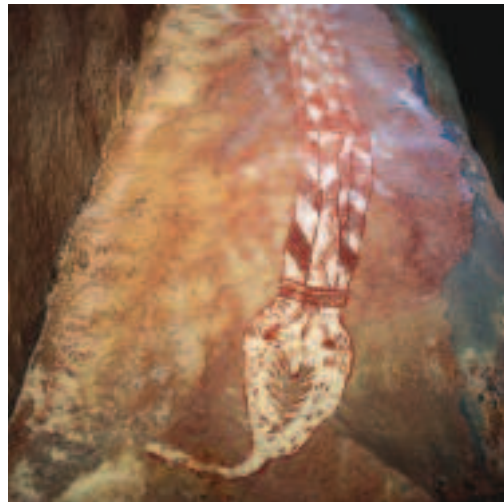
- Chillagoe: camp in the Outback and explore caves, rock formations, remnant dry rainforests, and eucalypt savannah. Learn firsthand about the history of the Barabaram people.
- Cape Tribulation: walk through lowland rainforests, giant sedges with peppermint stick insects, mangrove forests, and palm forests; traverse the Daintree River, notorious for its crocodiles; visit the canopy tower at the Daintree Environment Centre; sample and examine an array of forest types across the landscape.
- Visit the TREAT (Trees for the Evelyn and Atherton Tablelands Inc.) nursery.
- Learn about the geology and historical geography of the Atherton Tablelands.
- Assess seedling recruitment of restored tropical rainforest at revegetation sites.
- Examine growth and mortality of tropical rainforest species.
- Sample plant functional traits and their effect on drought, frost, and cyclone resistance.
- Examine fauna in endangered plant communities.
- Field research skills development includes: hair tube analysis; GIS; rainforest management strategies; seedling propagation; timber estimation; social science survey techniques (e.g. interviewing and surveys); transect and patch sampling; data recording and analysis; cost/benefit analysis; valuation methods; experimental design; plant functional trait sampling; restoration techniques.

COURSES

Semester students are registered in four academic courses accredited through Boston University:

Course No.	Name	Credits
BI/EE(NS) 369	Rainforest Ecology	04
EE(NS) 370	Principles of Forest Management	04
EE(SS) 302	Environmental Policy and Socioeconomic Values	04
EE 491 or 492	Directed Research	04

See page 26 for course descriptions.



“These findings [tree frog, mudskipper fish, forest dragon lizard], smaller than the cassowary, yet just as noteworthy, served as reminder of what I consider to be one of SFS’ central tenets: to the patient, appreciative observer, nature possesses allure and fascination at countless levels.”

BEN GOLDFARB, AMHERST COLLEGE

Student Directed Research Project Examples

- Using plant functional traits to predict drought and cyclone resistance.
- Micro bat use of rainforest fragments.
- Use of restored and natural rainforests by rainforest birds.
- Patterns of colonization of restored rainforest by vertebrates.
- Determining carbon sequestration values of rainforest restoration.
- Monitoring the Peterson Creek revegetation project.
- Evaluating policy instruments that are used to tackle environmental problems.

Student Research Contributions

Understanding local views on the ecological and socioeconomic challenges facing the community of north Queensland is key. Our on-going research and close ties with community stakeholders allow students to make meaningful contributions including:

- Assisting community members with planting more than 15,000 trees over the last few years, some of which were grown from seed at our field station, to restore degraded forests, improve water quality, and sequester carbon through plantings around watersheds.
- Assessment of tree seedling recruitment and growth working toward recommending best practices for achieving a successful restoration.
- Assisting community members with restoration of more than one mile of rainforest from grassland along the lower Peterson Creek.

Get Involved with the Local Community

Conservation, resource use, and rainforest restoration are extremely important to local farmers, resource managers, and concerned community groups. With the results of our research, we offer advice to local decision-makers and create linkages between our staff and the stakeholders involved in rainforest restoration and management. SFS students enjoy getting involved in community volunteer projects and social activities such as:

- Meeting with Aboriginal elders of the Yidinji, Ngadjon Jii, and Barbaram tribes to learn more about their culture and their effort to reclaim their role in land management.
- Community service trips to help local conservation groups and communities plant rainforest seedlings.
- Participating in annual community fauna surveys such as the crane count (October) and spectacled flying-fox counts (November).
- Attending special lectures on tree kangaroos, spectacled flying fox, rock wallaby, cassowary, and other local wildlife in conjunction with local conservation groups.
- Hosting community dinners and participating in short home stays.
- Bush dances, community festivals, visiting the Malanda theatre, socializing at the local pubs and sporting competitions, such as lawn bowling with Aussies.
- Learning how to make and play didgeridoos.

Program Prerequisites

Applicants for semester programs must be at least 18 years of age, in good academic standing, and have completed at least one college-level ecology or biology course and at least one semester of college prior to the start of the program.

Applicants for summer programs must be at least 16 years of age, in good academic standing, and have completed at least their junior year of high school prior to the start of the program. See page 28 for summer program information.



SFS AT WORK

One of the most crucial and endangered types of forest in the Atherton Tablelands is Mabi 5b rainforest, home to the highest densities of rare green ringtail possums and Lumholtz’s tree kangaroos in the world. SFS students have been conducting research on existing Mabi 5b forest fragments and have been working closely with the Mabi Forest Recovery Team to implement forest conservation and restoration initiatives.

When Tropical Cyclone Larry swept across the southern Atherton Tablelands, many forest fragments experienced extensive tree fall and defoliation. Students and faculty alike immediately set out to research the impacts that this storm had on the forest and are using those results in collaboration with the Mabi Forest Recovery Team and the Queensland Parks and Wildlife Service to inform management and restoration plans. Additionally, SFS students have continued to work with local Landcare groups on rainforest restoration, contributing technical expertise, providing seedlings from the SFS nursery, and planting trees. Because of the extent of students’ work on the ground, miles of the Peterson Creek have been revegetated, abandoned pasture has been restored, and previously isolated fragments of Mabi 5b forest are now buffered and connected, with green ringtail possums and Lumholtz’s tree kangaroos starting to be seen utilizing the restored forest. This research culminated in five scientific papers authored by SFS staff and students in a special edition of *Austral Ecology*.



TURKS & CAICOS

SOUTH CAICOS ISLAND, BRITISH WEST INDIES

SEMESTER PROGRAM DATES

Spring 2009: February 2 - May 6

Fall 2009: September 7 - December 10



Marine Resource Management Studies

ENVIRONMENTAL ISSUES

For the tourists who flock here, the Bahamian archipelago is a diving and angling paradise. But beneath the turquoise waters, a delicate ecosystem is under assault. The British-governed Turks and Caicos Islands (TCI) lie at the southeastern end of the Bahamian archipelago. The clear waters of the TCI are considered to be among the world's top 10 diving locations. Nearly 50 species of coral and over 350 large fish species, including spotted eagle rays, sharks, groupers, snappers, and dolphin fish are easily spotted in the clear, warm waters just steps from our field station. Nearby sea grass beds, mangrove forests, sandy shoals, and deep reefs lend a patchwork appearance to the miles of shallow blue waters that surround the Islands. However, pollution and overharvesting of precious marine resources, coupled with unsustainable tourism and industrial development, are poised to inflict irreparable damage to this delicate ecosystem. In short, conservationists may soon lose the battle.

These diverse and relatively intact and healthy ecosystems support much of the community on South Caicos Island, with fisheries providing the primary source of livelihood. The TCI are a major international exporter of rapidly dwindling stocks of queen conch and spiny lobster. Depletion of these resources, along with burgeoning tourism development, will have a dramatic impact on employment and social structure on South Caicos Island. Developing a sustainable fishery is essential if this resource-dependent community is to survive. While many Caribbean communities have promoted economic diversification to improve economic and social stability, uncontrolled tourism and land development will drive this fragile marine ecosystem and the traditional Caribbean culture it supports to the brink of collapse. Other forms of economic diversification and plans for sustainable development need to be implemented in order to avoid this pending environmental catastrophe.



RESEARCH IN ONE OF THE MOST SPECTACULAR MARINE HABITATS IN THE BRITISH WEST INDIES

Learn about tropical marine ecology and environmental management. Learn professional field research skills. Help find innovative approaches to fisheries, marine protected areas, and economic diversification. Join the friendly South Caicos Island community known as “Belongers” and learn about Caribbean culture.



OUR FIELD STATION ON SOUTH CAICOS ISLAND

The Center for Marine Resource Studies, located just steps from our crystal clear ocean laboratory, is adjacent to Cockburn Harbour, a town of about 1,100 residents. The field station sits on elevated land about 40 feet above the water and looks directly out over the sea. Within a three-mile radius are coral reefs, mangrove islands, sea grass beds, carbonate platform flats, and deep water diving. The main facility has a dining area, kitchen, classroom, library/computer room, and a veranda with spectacular ocean views. Students share living quarters in two residence wings. We are fully equipped for marine operations with access to docks, motor boats, a commercial compressor, and plenty of tanks and weights for SCUBA diving and snorkeling.



Turks & Caicos Program Description

OUR RESEARCH

Our Center is working with the TCI government's Department of Environment and Coastal Resources (DECR) and the National Park Service to develop management strategies that shield the TCI from the fate that has befallen other nearby areas in the Caribbean. Student field research is helping to provide the local government, community, and tourism developers with advice that will help sustain the economic, societal, and ecological stability of South Caicos and its island community.

With so many local residents dependent upon marine resources for their livelihood, along with increasing resource consumption by tourists, finding viable options for managing fisheries and conserving critical habitats, including coral reefs, is crucial. Snorkeling and SCUBA diving in waters surrounding South Caicos, students learn professional field research techniques to identify a wide range of marine organisms and habitats, and learn about marine ecology and coastal ecosystems. Students grapple with the challenges of balancing the economic needs of the fishing community with fisheries management and analyze the costs and benefits of potential new fisheries.

Assessing the pros and cons of resource management and habitat conservation options, and the social and economic implications of these options, brings students face-to-face with the real-life dilemmas faced by the governmental regulators and the residents of South Caicos.

TCI has an extensive network of 33 Protected Areas, but little is known about their functioning and effectiveness. With the Admiral Cockburn Land and Sea National Park and Bell Sound Nature Reserve on their doorstep, students are able to evaluate the concept of marine protected areas (MPAs) as a resource management tool. Students help monitor the condition of the spectacular coral reefs, both inside and outside the MPAs, using scientifically rigorous monitoring techniques. Based on their field observations, students assess the status of endangered important Nassau Grouper and identify essential habitats; assess the status and level of local fishing efforts; effects of diver tourism and habitat destruction; marine species interactions; the impact of coral diseases; feasibility of recycling programs; and many other issues related to marine natural resource

harvesting, conservation, and monitoring. Recent research indicates that conch and lobster nursery areas in dense sea grass beds need urgent protection in order to sustain these economically important resources. SFS students research the distribution and role of the sea grass habitats in the coastal environment of South Caicos. With the Admiral Cockburn Land and Sea National Park at their doorstep, students are able to evaluate the concept of marine protected areas (MPAs) as a resource management tool. Students help monitor the condition of the spectacular coral reefs, both inside and outside the MPAs, using scientifically rigorous monitoring techniques. Based on their field observations, students assess the validity of indicator species for reef health, the effects of diver tourism and habitat destruction, marine species interactions, the impact of coral diseases, and many other issues related to marine natural resource harvesting, conservation, and monitoring.

Reef fish stocks unprotected

The growing tourism industry in the TCI as a whole is increasing the demand for reef fish on restaurant menus. Local fishers on South Caicos recognize this market and commercial sale of certain reef fish species is rapidly increasing. Apart from having established a few "no-take" marine protected areas and banning spear fishing, there are currently no regulations in place to manage the harvest of reef fish. It is critical for the TCI to establish a comprehensive management plan for reef fish species so that they can be harvested in a sustainable manner to avoid total species collapse.

Field Research, Lectures, and Exercises

- SCUBA or snorkeling for field research and species identification exercises.
- Visual assessment of queen conch and coral reef fish populations.
- Fish, coral, sea grass, and mangrove identification.
- Zoning for multiple uses in marine protected areas.
- Ecosystem functioning and anthropogenic impacts.
- Habitat enhancement and restoration.

COURSES

Semester students are registered in four academic courses accredited through Boston University:

Course No.	Name	Credits
BI/EE(NS) 373	Tropical Marine Ecology	04
EE(NS) 374	Principles of Resource Management	04
EE(SS) 302	Environmental Policy and Socioeconomic Values	04
EE 491 or 492	Directed Research	04

See page 26 for course descriptions.



"I spent about 45 minutes each day floating along the bottom just looking at the most amazing fish in the world. Everyday I'd be down there thinking to myself, 'I can't believe this is school. This is the only way to learn.'"

CHRISTINE DODGE, SKIDMORE COLLEGE

- Lecture from DECR on the TCI government fisheries regulations and enforcement.
- Lecture and site tour from local tourism developer on plans for constructing a resort.
- Field research skills development may include: transects, quadrats, behavioral observations; survey design and interviewing techniques; environmental impact assessment; MPA assessment; data recording, analysis and statistics; scientific writing and oral presentation; peer evaluation and review; snorkel and SCUBA skills; GIS; cost/benefit analysis; valuation methods; habitat assessment and mapping; species id; habitat enhancement and restoration; construction of reefball technology; water sampling methods; census of populations; mark and recapture techniques; reef monitoring.

Student Directed Research Project Examples

- Population size assessment of potentially commercial finfish species around South Caicos.
- Finfish dock landing.
- Water quality monitoring and coral reef ecology, including growth, survival and recruitment.
- Baseline biodiversity surveys in critical habitats.
- Interactions between mangrove and sea grass faunal communities.
- Ecology of Nassau grouper.
- Local perceptions of tourism and fishing industries.
- Feasibility studies for recycling programs on South Caicos and the TCI.
- Habitat enhancement and restoration.

Student Research Contributions

- Lobster, conch, and finfish stock assessments have provided important information for government agencies.
- Natural resource workshop with the DECR and the National Park Service to provide the TCI government workers with training about coral reefs, lobster biology, marine fishes, turtles, and sharks.
- Working with the DECR, Protected Areas Department, and local businesses to develop a protocol for coral reef monitoring and queen conch distribution.

- Hosting public forums attended by government officials and community members to facilitate communal problem solving.
- Applying baseline data to examine reef health trends, species interactions, and impacts of coral diseases.
- Students present findings at the South Caicos Environmental Forum, run and hosted by SFS to disseminate findings to the local community.

Get involved with the Local Community

We are dedicated to helping the community conserve its natural resources and develop sustainably. Students become involved with the community learning about the Caribbean culture and the challenges they face. Community activities may include:

- Swimming lessons hosting SEA DAY for local children.
- Reading, tutoring, and volunteer projects at the local library and grade school.
- Teaching English to Haitians to help their integration into the community.
- Public service announcements, beach clean ups to raise environmental awareness.

Program Prerequisites

Applicants for semester programs must be at least 18 years of age, in good academic standing, and have completed at least one college-level ecology or biology course and at least one semester of college prior to the start the program. Many past students in this program have found one semester of statistics to be helpful.

Applicants for summer programs must be at least 16 years of age, in good academic standing, and have completed at least their junior year of high school prior to the start of the program. See page 28 for summer program information.

SCUBA Certification

It is not necessary to use SCUBA to participate in our program – many students choose to snorkel instead. However, if you intend to use SCUBA you must be certified before arrival. Divers and snorkelers must bring their own SCUBA and snorkeling equipment (with certification, insurance etc). Weights and tanks are provided on-site at no cost.



SFS AT WORK

This spring, 2008, SFS entered into an agreement with the Reef Ball Foundation (RBF) to restore marine reefs around South Caicos Island. With the help of RBF, SFS will create, deploy, and study underwater groupings of specially designed artificial reef structures that will provide new habitats for coral, fish, and marine wildlife. Reef Balls, which are dome-shaped concrete structures with a Swiss-cheese of holes, are designed to imitate natural reef formations, giving nature a jump-start by supplying what would take many years of biological growth to accomplish, and providing a medium to promote new growth. They provide ideal habitats for fish, lobsters, and other marine life, which move in soon after deployment.

South Caicos is fringed by the world's third largest barrier reef system—one of the more pristine marine habitats in the Caribbean. These reef areas face die-off due to the effects of global warming, unsustainable and destructive fishing practices, and physical destruction due to storms and anthropogenic factors such as unregulated development. It takes thousands of years for a reef to form naturally, and the degradation or outright destruction of a reef can be devastating to ocean and coastal life, with entire ecosystems being wiped out.

"This is a wonderful opportunity to combine state of the art technology with research opportunities for students," says SFS Professor Catherine Jadot. SFS plans continually install more Reef Balls over the next five years.

Semester Course Descriptions

BI/EE (NS) Students choose to register for either Biology or Environmental Studies credit

EE (NS) Environmental Studies (Natural Science)

EE (SS) Environmental Studies (Social Science)

LE Swahili

LS Spanish

SS Social Sciences

KENYA

BI/EE (NS) 372 WILDLIFE ECOLOGY presents students with the information and conceptual background necessary to understand the underlying ecological principles of the East Africa savanna ecosystem. We will focus on the fundamental processes and interrelationships between the biotic and abiotic environment. We begin with basic ecological principles, setting them against the background of East Africa. Factors underlying distributions, population biology, and behavioral ecology will be examined along with competition and predation using African examples. Theoretical models will be discussed in light of our observations on field trips.

BI/EE (NS) 371 TECHNIQUES OF WILDLIFE MANAGEMENT introduces students to the questions, principles, and tools used by resource managers in the Kenyan savanna ecosystem. Students study habitat assessment, plant and animal identification, associations and distributions, and other approaches to evaluating the savanna ecosystems. Behavioral, physiological, and social responses of animals to a changing environment will be examined. Field and laboratory techniques for monitoring ungulate populations and optimizing management practices will be presented. Decision-making processes, on which wildlife management programs are based, will be addressed.

EE (SS) 302 ENVIRONMENTAL POLICY & SOCIOECONOMIC VALUES provides insight into the broad social context surrounding natural resources to determine effective approaches to resource management. Objectives are to understand socio-cultural context including hierarchies and power structures; formal and informal decision making processes; value systems relevant to natural resources including religious factors and environmental ethics; past and present uses of natural resources; economic factors (local, regional, external); ownership patterns; attitudes and other factors that affect change and their historical basis; and legal basis for enforcement of environmental policy. Introduction of major constituencies that effect conservation (NGO conservation groups, economic interests, etc.) and their underlying philosophies.

EE 491 (FALL) EE 492 (SPRING) DIRECTED RESEARCH prepares students to distinguish hidden assumptions in scientific approaches and separate fact from interpretation, cause from correlation, and advocacy from objectivity. Specific tools will include experimental design, field techniques, basic descriptive statistics, and parametric and non-parametric quantitative analysis. Succinct scientific writing, graphic, and tabular presentation of results and effective delivery of oral presentations will be emphasized.

LE 205E INTRODUCTION TO SWAHILI LANGUAGE AND EAST AFRICAN TRIBAL COMMUNITIES, contains two distinct but integrated modules. The Swahili language module offers listening, oral, and written practice of the Swahili language at a basic level of proficiency, to increase students' communication and comprehension skills. Much of the Maasai population does not speak Swahili, but it is the national language in Kenya — this phenomenon will be explained in the second course module. The socio-cultural aspects of East-African tribes module emphasizes understanding of, and direct contact and interaction with, the native communities with which SFS works, primarily the Maasai. This exposure to culture and language will be reviewed and processed through lectures, field exercises, and classroom discussion. The socio-cultural module is designed to help students experience intense immersion in the culture and be therefore more adept at working effectively in their community-based Directed Research efforts.

COSTA RICA

EE (NS) 377 TROPICAL ECOLOGY & SUSTAINABLE DEVELOPMENT examines the ecological impact of human activity, especially agriculture in a tropical country. The agroecology of important crops will be studied with emphasis on biodiversity as the source of production means and materials. Students will identify renewable and nonrenewable resources and examine their historical use. We will study the long-term and large-scale impact of local agricultural and other practices on the national and global environment (e.g. water pollution, waste management, climate change). Options for alternative resources use, land restoration, and preservation will be examined from ecological, socio-political, and economic viewpoints. Factors that constrain or promote particular options will be included. Basic field techniques and measurements will also be covered.

EE (NS) 374 PRINCIPLES OF RESOURCE MANAGEMENT introduces practical tools used in addressing complex environmental problems including coastal zone planning, guidelines for ecologically sustainable development, environmental impact assessment, fisheries management, and protected-area planning and management. We will review these tools in terms of their application to local issues and to Case Studies from the Caribbean, the United States, Central America, and East Africa.

EE (SS) 303 ECONOMIC AND ETHICAL ISSUES IN SUSTAINABLE DEVELOPMENT addresses the principles and applications of ecological economics, or the scientific and management aspects of sustainability. Allocation, distribution, and scale will be presented as

parameters to assess the sustainability of development models (at a macro and micro level). Basic concepts of ecological economics cost-benefit valuation techniques will be presented and applied. The roles of local people, government, and private, national, and bilateral aid agencies will be examined as constraints for the implementation of sustainable development models. The empowerment of local people and their reaction to non-local proposals for sustainable development will be examined through the review of specific case studies.

EE 491 (FALL) EE 492 (SPRING) DIRECTED RESEARCH prepares students to distinguish hidden assumptions in scientific approaches and separate fact from interpretation, cause from correlation, and advocacy from objectivity. Specific tools will include experimental design, field techniques, basic descriptive statistics, and parametric and non-parametric quantitative analysis. Succinct scientific writing, graphic and tabular presentation of results, and effective delivery of oral presentations will be emphasized.

LS 205E LANGUAGE, CULTURE, AND SOCIETY OF COSTA RICA contains two distinct but integrated modules. The Spanish language module offers listening, oral, and written practice of the Spanish language at beginner, intermediate, and advanced levels of proficiency. Students will engage in oral and written grammar and vocabulary exercises and develop Spanish language skills and tools required for their research projects. The socio-culture module helps students develop a more refined understanding of Costa Rican culture and the various communities with which we work. Students participate in lectures, field exercises, and other activities including a home stay — all of which teach them strategies and skills for working with people in a community-based research context and help them to assist with community extension projects.

MEXICO

BI/EE (NS) 379 COASTAL ECOLOGY examines the ecological processes interface between land and sea in order to understand how human perturbations impact both marine and terrestrial systems. The watershed concept will be used to explore nutrient flow, energy cycling, coastal circulation, productivity, and biotic interactions. This course provides a basic understanding of how natural systems work in order to help guide resource managers toward ecologically sound and sustainable decisions. Fieldwork exposes students to techniques of surveying, monitoring, and the study of biotic interactions in a complex physical/chemical milieu.



EE (NS) 374 PRINCIPLES OF RESOURCE MANAGEMENT introduces practical tools used in addressing complex environmental problems including coastal zone planning, guidelines for ecologically sustainable development, environmental impact assessment, fisheries management, and protected-area planning and management. We will review these tools in terms of their application to local issues and to case studies from the Caribbean, United States, Central America, and East Africa.

EE (SS) 303 ECONOMIC AND ETHICAL ISSUES IN SUSTAINABLE DEVELOPMENT addresses the principles and applications of ecological economics, or the scientific and management aspects of sustainability. Allocation, distribution, and scale will be presented as parameters to assess the sustainability of development models (at a macro and micro level). Basic concepts of ecological economics cost-benefit valuation techniques will be presented and applied. The roles of local people, government, and private, national, and bilateral aid agencies will be examined as constraints for the implementation of sustainable development models. The empowerment of local people and their reaction to non-local proposals for sustainable development will be examined through the review of specific case studies.

EE 491 (FALL) EE 492 (SPRING) DIRECTED RESEARCH prepares students to distinguish hidden assumptions in scientific approaches and separate fact from interpretation, cause from correlation, and advocacy from objectivity. Specific tools will include experimental design, field techniques, basic descriptive statistics, and parametric and non-parametric quantitative analysis. Succinct scientific writing, graphic and tabular presentation of results, and effective delivery of oral presentations will be emphasized.

AUSTRALIA

BI/EE (NS) 369 RAINFOREST ECOLOGY introduces structure and function of tropical rainforests including floral and faunal components. Ecological processes that maintain biodiversity and the evolutionary processes that generate it will be presented. We will examine the dynamic relationships between plants and animals including pollination and seed dispersal. On a larger scale, we will examine tropical vegetation patterns along climatic gradients and discuss mechanisms for preserving and restoring tropical ecosystems.

EE (NS) 370 PRINCIPLES OF FOREST MANAGEMENT presents the ecological and analytical tools used in the management of terrestrial, living resources. We will use examples from the tropics to stress the theories and skills that provide the foundation for land management worldwide. The assessment and minimization of adverse environmental impacts caused by resource development, as well as the restoration and rehabilitation of areas suffering from chronic human-induced disturbances, provide key foci for applying principles learned.

EE (SS) 302 ENVIRONMENTAL POLICY & SOCIOECONOMIC VALUES provides insight into the broad social context surrounding natural resources to determine effective approaches to resource management. Objectives are to understand socio-cultural context including hierarchies and power structures; formal and informal decision making processes; value systems relevant to natural resources including religious factors and environmental ethics; past and present uses of natural resources; economic factors (local, regional, external); ownership patterns; attitudes and other factors that affect change and their historical basis; and legal basis for enforcement of environmental policy. Introduction of major constituencies which effect conservation (NGO conservation groups, economic interests, etc.) and their underlying philosophies.

EE 491 (FALL) EE 492 (SPRING) DIRECTED RESEARCH prepares students to distinguish hidden assumptions in scientific approaches and separate fact from interpretation, cause from correlation, and advocacy from objectivity. Specific tools will include experimental design, field techniques, basic descriptive statistics, and parametric and non-parametric quantitative analysis. Succinct scientific writing, graphic and tabular presentation of results, and effective delivery of oral presentations will be emphasized.

TURKS & CAICOS ISLANDS

BI/EE (NS) 373 TROPICAL MARINE ECOLOGY discusses the interactions that determine the distribution and abundance patterns of tropical marine organisms, with emphasis on the ecology of near-shore areas. Basic principles of ecology are integrated with an understanding of the sea as a habitat for life. Physical, chemical, and geological oceanography are discussed. Major groups of dominant marine organisms of the region are examined in the field. Major near-shore marine habitats are examined, along with their associated biotic communities. Coral reef ecosystems are emphasized to illustrate basic concepts. Applications to the management of indigenous marine resources are discussed and demonstrated.

EE (NS) 374 PRINCIPLES OF RESOURCE MANAGEMENT introduces practical tools used in addressing complex environmental problems including coastal zone planning, guidelines for ecologically sustainable development, environmental impact assessment, fisheries management, and protected-area planning and management. We will review these tools in terms of their application to local issues and to case studies from the Caribbean, United States, Central America, and East Africa.

EE (SS) 302 ENVIRONMENTAL POLICY & SOCIOECONOMIC VALUES provides insight into the broad social context surrounding natural resources to determine effective approaches to resource management. Objectives are to understand socio-cultural context including hierarchies and power structures; formal and informal decision making processes; value systems relevant to natural resources including religious factors and environmental ethics; past and present uses of natural resources; economic factors (local, regional, external); ownership patterns; attitudes and other factors that affect change and their historical basis; and legal basis for enforcement of environmental policy. Introduction of major constituencies which effect conservation (NGO conservation groups, economic interests, etc.) and their underlying philosophies.

EE 491 (FALL) EE 492 (SPRING) DIRECTED RESEARCH prepares students to distinguish hidden assumptions in scientific approaches and separate fact from interpretation, cause from correlation, and advocacy from objectivity. Specific tools will include experimental design, field techniques, basic descriptive statistics, and parametric and non-parametric quantitative analysis. Succinct scientific writing, graphic and tabular presentation of results, and effective delivery of oral presentations will be emphasized.

Summer Programs

SUMMER 2009 PROGRAM DATES

Session I: June 8 – July 7

Session II: July 13 – August 11

There are no application deadlines. However, students are urged to submit their application early as programs fill quickly and applications are reviewed on a first come, first served basis, except for the Field Practicum in Public Health and Environment in Kenya, which has an early spring deadline. Please see our Web site for updated information.



Overview

Our month-long, four-credit summer programs combine interdisciplinary lectures with field research exercises and expeditions.

Students in summer programs assist our faculty in conducting research designed to support local communities in natural resource management decision-making.

Each course carries four college-level credits in environmental studies. In some cases, the summer course may fulfill a university's field-study requirement. There are no pre-requisites for summer courses. The majority of summer participants are college undergraduates, but motivated high-school seniors, gap year students, and recent college graduates may also participate.

Please visit our Web site at www.fieldstudies.org or call 800.989.4418 to order a complete summer course catalog.

Summer Program Descriptions

AUSTRALIA/ NEW ZEALAND

SESSION I: TROPICAL RAINFOREST MANAGEMENT

STUDIES IN NEW ZEALAND & AUSTRALIA

SESSION II: TECHNIQUES FOR RAINFOREST RESEARCH IN AUSTRALIA

Rainforest ecosystems are a "hot spot" for faunal and floral biodiversity and provide humans with clean air, water, food, and medicines, yet thousands of acres disappear each day. Large areas of northeastern Queensland were once covered in spectacular tropical rainforests, preserving millions of years of evolutionary history, but agricultural and residential development have destroyed and disrupted rainforest habitat, leaving only a fragmented belt. This summer program offers two new four-credit courses, which can be taken back-to-back to provide a thorough introduction to biodiversity conservation techniques and the socioeconomic factors influencing land management in two unique areas.

SESSION I: TROPICAL RAINFOREST MANAGEMENT STUDIES IN NEW ZEALAND & AUSTRALIA

Students compare and contrast the ecological, geographical, social, economic, and historical factors that have shaped natural resource management in far north Queensland and northern New Zealand. These two countries share a similar Gondwanan ancestry; however, indigenous and European settlement patterns and economic development significantly differ between the two countries. In New Zealand, students discover the critically endangered flora and fauna of northern New Zealand and the factors that have led to their disjunct populations. In Australia, students take their New Zealand experiences and examine similarities and differences in political structure, land use patterns, and biogeography.

SESSION II: TECHNIQUES FOR RAINFOREST RESEARCH IN AUSTRALIA

Examining the effects of fragmentation in highly endangered rainforest systems, students explore Australia's tropical forests and develop effective rainforest research skills while learning about rainforest conservation.

COSTA RICA

SUSTAINING TROPICAL ECOSYSTEMS: BIODIVERSITY, CONSERVATION, AND DEVELOPMENT

The Republic of Costa Rica is known worldwide for its conservation efforts. More than 26% of the land in the country is under some type of conservation model and these areas are protecting more than 5% of the entire world's biodiversity. This phenomenon has attracted thousands of tourists to Costa Rica and its parks and

reserves. With a population of 4.5 million people, Costa Rica receives more than 1.7 million tourists per year, of which 53% visit national parks to see, experience, and enjoy the biodiversity of tropical ecosystems. The lack of funding necessary to cover park operating costs has created major stress to the park system and surrounding communities. Visitors are demanding and needing increased services that cannot be provided due to financial constraints. As a result, the Ministry of Environment of Costa Rica have asked SFS for assistance in producing useful information through hands-on applied research to better manage the operation of the parks within the conservation areas. Students will learn about the ecological, resource management, and socioeconomic factors impacting the parks and surrounding regions, and will be directly involved in designing and proposing recommendations to park managers in response to the challenges of heavy visitation and threats to conservation goals.

KENYA

COMMUNITY WILDLIFE MANAGEMENT

In recent years, there has been a steady shift in land use from purely pastoral to mixed agropastoral systems in the Maasai group ranches that occupy the land between Amboseli and Tsavo West National Parks in southern Kenya. This land use change is driven by a variety of socioeconomic, cultural, and political factors and is compromising the integrity and quality of dispersal habitats for a wide variety of wildlife species that historically have dispersed across the group ranches while migrating between the parks. Such dispersal hindrances are turning protected areas like Amboseli National Park into ecological islands that cannot sustain natural ecological processes nor maintain the high density and diversity of wildlife species using it for dry season grazing. Students will examine how land use practices within Maasai group ranches (Kuku-Kimana-Mbirikani) can be sustainably managed to enhance the economic livelihood of the local population and at the same time promote wildlife conservation.

FIELD PRACTICUM IN PUBLIC HEALTH AND ENVIRONMENT

In the early 1980s Kenya began a process of privatizing open grazing land into group ranches. This significant land use change has forced traditionally nomadic peoples, including the Maasai, onto smaller plots of land. The Maasai, a proud and historically self-sufficient society are now facing many environmental, social, political and economic challenges. The result has increased their vulnerability to disease and famine, and they frequently rely on relief food and scarce water resources to survive. This major shift from nomadism to pastoralism, coupled with adverse



environmental conditions, has brought about new health problems for the Maasai, including an escalation in sanitation-related and water-borne diseases, infant and childhood disease, and HIV/AIDS. This course will provide students with experience in assessing and analyzing public health and environmental concerns in identified Maasai communities. This program is a graduate-level field course open to both graduate and qualified undergraduates in public health, nursing, pre-med, medical and health sciences. This course has an early spring application deadline. Please check the SFS Web site for updated deadline information.

MEXICO

CONSERVATION OF COASTAL DIVERSITY AND

THREATENED MARINE TURTLES IN BAHÍA MAGDALENA

Despite nearly two decades of conservation efforts, some species of sea turtle continue to decrease in Mexican waters and are sliding toward extinction worldwide. Bahía Magdalena has played an important role as a refuge for several sea turtle populations, mostly green turtles, but also olive ridleys, loggerhead and the rare hawksbill turtles. Despite strong regulations against their exploitation, sea turtles are still poached and caught as by-catch in fishing activities. A complex interaction of community social and cultural factors, such as lack of protected areas in the region, lack of enough enforcement of existing regulations, and economic hardship in local communities has led to the continued exploitation and the rapid decline of sea turtle populations. Students examine the ecological, societal, and economic issues surrounding sea turtles and other natural resources in Bahía Magdalena.

TURKS AND CAICOS ISLANDS

MARINE PROTECTED AREAS: MANAGEMENT TECHNIQUES AND POLICIES

The reefs of South Caicos harbor an incredible array of marine life — resources that have proven to be critically important for this island community. The importance of these reefs has not guaranteed their survival, however, and the reefs face pollution, dredging, dumping, and damage from boats and divers. The spectacular reefs and waters of South Caicos serve as the laboratory for most of our field work. Students assist in the creation and/or monitoring of artificial reefs using Reefball™ technology to enhance or restore reef habitats. Students support the work of our clients and stakeholders, who range from local fishers to members of key government agencies. Our goal is to collect data from the field in order to influence policy recommendations, MPA management plans, and community projects.



Summer Course Descriptions

KENYA

EE (NS) 350 COMMUNITY WILDLIFE MANAGEMENT

introduces students to wildlife management concepts and field skills to investigate the human/wildlife conflict dynamic present in Kenya. This course explores the potential for re-thinking wildlife as a source of income generation, rather than as a competitor for space and water and/or as a threat to human endeavor — which may provide an alternative and sustainable form of human/wildlife co-existence and land-use option. We will explore possible commercial uses of wildlife such as game cropping, regulated sport hunting, and ecotourism. Compare the potential benefits of utilizing wildlife with alternative land-use options such as agriculture.

IH 707 FIELD STUDY IN PUBLIC AND

ENVIRONMENTAL HEALTH intensive 5-week field-based course is conducted in Kenya among the Maasai community. Participants get community based hands-on experience in designing and implementing a household health survey; in analyzing data and preparing a report. Participants present and discuss survey findings with community leaders to identify follow-up health discussion, and supervise and coordinate field visits in collaboration with an indigenous NGO with community-based health programs in Maasailand.

COSTA RICA

EE (NS) 352 SUSTAINING TROPICAL ECOSYSTEMS:

BIODIVERSITY, CONSERVATION, AND DEVELOPMENT

provides students with practical field skills necessary to develop and participate in on-going, long-term, community and tropical ecosystem-based research projects. Students will be introduced to the ecological, economic, and natural resource management issues that surround protected area and tourism management, parks and people relations, and biodiversity assessment and protection in national parks and surrounding areas — with the intent of exploring sustainable development and management strategies.

MEXICO

EE (NS) 356 PRESERVING COASTAL DIVERSITY: SEA

TURTLES AND BAY RESOURCES exposes students to the relationship between the decline in biodiversity and the health of the Magdalena Bay ecosystem. We will identify the most critically threatened areas in Bahía Magdalena to help design a strategy for protecting these resources. Lectures and field exercises: integrated coastal zone management, sea turtle protection, ecological economics, Mexican history and society,

coastal ecology, and fisheries management. The research component of the course will concentrate on the threatened green turtle.

NEW ZEALAND & AUSTRALIA

EE (NS) 354 TROPICAL RAINFOREST MANAGEMENT

STUDIES compare and contrast the ecological, geographical, social, economic and historical factors that have shaped natural resource management in Australia and New Zealand. Gain an understanding of the drivers of species extinctions and current conservation problems including management of endangered species. In both countries, students examine the influence of fragmentation on abiotic and biotic attributes of forest communities during field exercises and will be able to identify management techniques with regards to biological systems, national boundaries, and political structures.

AUSTRALIA

EE (NS) 355 TECHNIQUES FOR RAINFOREST

RESEARCH includes a wide range of lectures and hands-on field activities that will concentrate on developing management recommendations for reforestation practices on the Tablelands of Australia. We will explore the ecological roles, environmental services, and economic benefits of tropical rainforests. Examine the structure and function of Australian tropical rainforests and the roles that humans have played in current forest dynamics. Examine reforestation applications on the Tablelands: the goals, techniques, successes, and the failures. We will develop and maintain an actual rainforest restoration project.

TURKS & CAICOS ISLANDS

EE (NS) 351 MARINE PROTECTED AREAS: MANAGEMENT TECHNIQUES AND POLICIES

will focus on lectures, field exercises, and other activities that enable us to understand how the Caicos Bank ecosystem works, its resource development potential, the threats facing these resources, and the role of marine parks in protecting and enhancing these resources and their critical habitats. Particular emphasis will be given to commercially important resources such as conch and lobster stocks. Our project findings will contribute toward developing marine parks policy, management plans, and innovation and technology transfer to assist in the management of marine protected areas.

Admissions Requirements & Instructions

When to Apply

The School for Field Studies reviews applications on a rolling basis, beginning approximately one year before the session begins. While there is no admissions deadline for semester programs, we encourage students to apply early to ensure admission to their program of choice. Semester students should check with their home institution regarding school-specific deadlines. Decisions are generally available within two to four weeks of the date when your application becomes complete. Review cannot begin until all application materials have been received.

Before You Apply

The SFS program will likely be very different from your traditional academic experience and traditional study abroad program. We expect you to take a proactive role in all aspects of your experience including scheduling activities, selecting research projects, managing risk, and supporting the day-to-day operation of the field station. Before applying, be sure to read the program components and relevant information. Please contact the SFS Admissions office at 800.989.4418 with any questions regarding programs.

Requirements and Policies

Applicants for semester programs must be at least 18 years of age, in good academic standing, have completed at least one college-level ecology or biology course, and completed at least one semester of college prior to the start of the program. Gap year students are welcome to apply. Please contact the Admissions Office at 800/989.4418.

*Applicants for the semester program in Costa Rica must have completed a college-level course in ecology or environmental studies, and are encouraged to have taken coursework in international development, economics, or anthropology. Students must have one college-level course in Spanish on their transcript.

Applicants for summer programs must be at least 16 years of age, in good academic standing, and have completed at least their junior year of high school prior to the start of the program.

Applying to SFS

Your complete application for admission includes:

- **SFS APPLICATION FOR ADMISSION FORM.** You may apply online or use the enclosed paper application.
- **PARTICIPATION APPROVAL FORM** to be completed by your study abroad advisor or academic dean. Students from Affiliate Schools should have their form completed by one of the designated Affiliate representatives at their school. Please refer to our Web site to find out if your school is an Affiliate Partner and who your representatives are: http://www.fieldstudies.org/pages/73_affiliation_with_sfs.cfm
- **NON-REFUNDABLE APPLICATION FEE OF \$45** (credit card or check made payable to The School for Field Studies).

- **CURRENT, OFFICIAL TRANSCRIPTS** from all schools attended. It is not necessary for college students to submit high-school transcripts after a full academic year of college coursework has been completed.
- **SFS ACADEMIC REFERENCE FORM** to be completed by a teacher, professor, or academic advisor who is well acquainted with your current academic performance. It is not appropriate for this reference to be completed by an undergraduate level TA.
- **SFS CHARACTER REFERENCE FORM** to be completed by someone who knows you well, such as another academic source, a job supervisor, volunteer advisor, athletic coach, etc. It is **not appropriate** for this reference to be completed by a relative, peer, or family friend.

Please call the SFS admissions office if you have questions regarding your reference selection. You should request that each SFS reference form be completed and returned to you in a sealed envelope, signed across the back. Supplementary letters of recommendation are welcomed, but, at a minimum, both individuals providing references must complete the SFS reference forms.

Steps to Apply

1. Review program information and prerequisites located in the catalog or at www.fieldstudies.org. Please feel free to call 800.989.4418 if you need help deciding which program is right for you.
2. Collect necessary materials to complete your application.
3. Complete participation approval form.
4. Select application method:
 - Paper application (enclosed)
 - Download a PDF of our application from www.fieldstudies.org
 - Complete our online application at www.fieldstudies.org

If you are submitting a paper application, please return your complete application materials in one envelope to:

The School for Field Studies
10 Federal Street, Ste. 24
Salem, MA 01970-3876

When can I expect to hear a decision on my application?

Once an application is received, you will be contacted by email with information about any missing materials. If your application is incomplete, it is your responsibility to follow up on any missing materials. SFS is unable to begin the application review process until all necessary materials are received. To expedite the completion of your application, we suggest that you submit all of your application materials together. From the date when an application becomes complete, an admissions decision is generally available within two to four weeks. You should apply early to allow sufficient time for your application to be processed. Please note that final acceptance to all programs is contingent upon medical approval.

Medical Approval and Disability Information

PHYSICAL EXAMINATION AND MEDICAL INSURANCE
Please complete medical review documents after you have been accepted. Your final acceptance is contingent upon medical approval. You must submit an online medical review form and an SFS physical examination and authorization form signed by a qualified medical professional, within two weeks of acceptance. Please refer to the SFS Web site (www.fieldstudies.org) for information about the medical approval process. Students with late medical forms may forfeit their space on a program. All medical forms will be reviewed by the SFS safety director. You must be able to meet the physical challenges presented by SFS programs without undue risk to yourself or others. Academically qualified individuals may be disqualified from participating on medical grounds. You will not be allowed to join an SFS program without proof of current medical insurance.

Disability Information

Students with disabilities are welcome on SFS programs. However, students with disabilities requesting accommodations are responsible for notifying the SFS safety director of physical disabilities and the SFS program dean of learning disabilities. Notification of disability must be made in writing and submitted within ten business days of acceptance. Please be aware that the level of accessibility, services, and accommodations to which you may have access at your home campus may not be available overseas. Please refer to the appropriate SFS academic handbook for more information, or call us at 800.989.4418 for further assistance.

Dietary Restrictions

If you have any special dietary restrictions, please contact the SFS safety director within ten business days of acceptance and document the restrictions on your online medical review form. Students with dietary preferences (vegetarian, vegan, etc.) should discuss these with their admissions counselor.

Non-discrimination Policy

SFS admits students of any sex, religion, race, color, national or ethnic origin, sexual orientation, or economic status to all the rights, privileges, programs, and activities generally accorded or made available to students of SFS and does not discriminate on the basis of sex, religion, race, color, sexual orientation, national or ethnic origin, physical or mental disability, or other protected status in the administration of its educational policies, admissions policies, scholarship loan programs, and other School-administered programs. SFS is an equal opportunity institution.

Tuition, Financial Aid, & Scholarships

Financial Aid

A key component of the SFS mission is to ensure that as many interested and eligible students as possible are able to participate in SFS programs. Since our founding in 1980, close to 13,000 students have taken advantage of our semester or summer programs in all corners of the world. However, a significant challenge for a number of potential SFS students is the ability to meet our program and travel costs. Therefore, SFS has developed a range of financial resources to support our students.

SCHOLARSHIPS

SFS General Scholarship Fund: awards are need-based. All SFS students are eligible to apply. Maximum \$5,000 for semester; \$2,000 for summer.

Andreas Family Foundation Scholarship: awards are need-based. Eligibility is limited to students attending US public institutions and is for semester programs only. Maximum award \$5,000. *Andreas Family Fund Scholarship Application Deadlines: October 15 for spring programs; March 15 for fall programs.*

SFS Travel Grants: need-based awards meant to help offset the cost of travel to SFS programs. Preference will be given to those students participating in Kenya and Australia programs, where the cost of airfare is significantly higher than other SFS programs.

Heather Jo Leibowitz Memorial Scholarship for Kenya - \$1,000

Awards are need-based and available only to students on the Kenya program. In remembrance of Heather, preference will be given to students who have a commitment to making a difference in the lives of resource dependent communities in Kenya.

McKee Scholarship

This endowed scholarship was made possible by the generosity of Charles D. McKee, a member of the SFS Board of Trustees and father of SFS Alumna Heidi McKee. It is awarded on an annual basis to a financially deserving student attending any SFS summer or semester program.

Erin L. Bergstrom Memorial Scholarship

Awards are need-based and available only to students at the University of San Diego. Preference will be given to students who have both a commitment to preservation of the environment, and have demonstrated leadership skills at the University or in their communities.

Fountain Scholarship

This scholarship provides tuition assistance to those SFS applicants who (a) have spent the substantial part of their childhood and teenage years growing up in an

urban/city environment (whether in the US or internationally); (b) demonstrate financial need; and (c) demonstrate a commitment and concern for environmental issues. This scholarship is made possible by the generosity of SFS alumnus and noted film director of *The Fountain*, Darren Aronofsky.

LOANS

Zero Interest Loans

Created through the generosity of the Merck Family Foundation. Semester loans must be repaid within two years and summer loans within one year of program completion.

Low Interest Loans

This low interest loan program is designed to assist semester students in bridging the gap between current financial resources and total program cost. This loan is set at a competitive market rate with manageable repayment terms.

Many applicants receive aid through their home schools or other outside sources. You may qualify for SFS assistance even if you are not receiving aid from your home school.

If you will need financial assistance for a semester or summer program, please complete an SFS Financial Aid Application as soon as possible. Financial aid applications are reviewed following acceptance. For an application, go to: http://www.fieldstudies.org/pages/225_financial_aid.cfm. more information on how to qualify for assistance, please call the SFS admissions office at 800.989.4418 or visit www.fieldstudies.org.

SEMESTER STUDENTS: A growing number of schools allow students to take institutional financial aid off-campus. Check with your financial aid office to see what aid you can apply to your SFS program. We encourage you to investigate applying for federal financial aid funds including loans through your home school. Because the credits you earn for your SFS participation will, in all likelihood, be applied toward your degree, your school should be able to process a Stafford Loan to assist your SFS participation. If you encounter difficulty in arranging to use federal financial aid funds for your SFS program, please contact the SFS admissions office at 800.989.4418 and we will do our best to assist you.

Deposits and Tuition

Payment of a non-refundable program deposit is due 10 business days following acceptance to an SFS program. Semester: \$650; Summer: \$450. All deposit payments are non-refundable EXCEPT in cases where SFS financial aid is sought. * Students who are accepted on a contingency

basis and elect to pay the deposit are NOT eligible for a deposit refund should the student fail to meet the required contingency. Final tuition payment is due no later than 60 days prior to the start of the program.

**You must complete and return the financial aid application within 10 business days of acceptance to qualify for refund status on your program deposit.*

Refund Policies

SEMESTER

If you withdraw by notifying SFS in writing, the following amounts will be refunded:

- Withdrawal 61 days or more prior to the first day of the program = 100% refund of total program cost (less deposit).
- Withdrawal 60-31 days prior to the first day of the program = 50% refund of total program cost (less deposit).
- Withdrawal 30 days prior to 14 days after the start of the program = 25% refund of total program cost (less deposit).
- Withdrawal 15 or more days after the start of the program, or if a student is asked to leave the program = NO REFUND.

Students may transfer the non-refundable deposit to an SFS course within the next 12 months subject to acceptance.

Financial aid candidates: deposits are refundable if withdrawal is less than 10 days following financial aid offer. (You must complete and return the financial aid application within 10 business days of acceptance to qualify for refund status on the deposit). Application fees are non-refundable.

SUMMER

If you withdraw by notifying SFS in writing, the following amounts will be refunded:

- Withdrawal prior to 60-22 days before the start of the program = 100% refund of total program cost (less deposit).
- Withdrawal 21-0 days prior to the start of the program = 50% refund of total program cost (less deposit).
- Withdrawal after the program starts = NO REFUND.

Students may transfer the non-refundable deposit to an SFS course within the next 12 months subject to acceptance.

Financial aid candidates: deposits are refundable only if withdrawal is less than 10 days following financial aid offer. You must complete and return the financial aid application within 10 business days of acceptance to qualify for refund status on the deposit. Application fees are non-refundable.

SEMESTER COSTS FALL 2008 – SPRING 2009

*Program Costs for Fall 2009 will be determined in March 2009

Program	Tuition	Program Fees	Total Program Cost
Kenya	\$11,100	\$5,190	\$16,290
Australia	\$11,100	\$5,050	\$16,150
Turks & Caicos	\$11,100	\$4,525	\$15,625
Costa Rica	\$11,100	\$4,525	\$15,625
Mexico	\$11,100	\$4,525	\$15,625

SUMMER COSTS 2009

Program	Tuition	Program Fees	Total Program Cost
Kenya Public Health	TBD	TBD	TBD
Kenya Wildlife Mgmt	\$2,710	\$1,570	\$4,280
Australia	\$2,710	\$1,530	\$4,240
Turks & Caicos	\$2,710	\$1,315	\$4,025
Costa Rica	\$2,710	\$1,105	\$3,815
Mexico	\$2,710	\$1010	\$3,720

Academic Credit

SFS participants are registered at and receive transcripts from Boston University, which accredits SFS programs. The only exceptions are students from SFS Affiliate and Consortium schools who receive credit directly from their home institutions.

All SFS courses are approved and assigned course numbers by Boston University. SFS semester programs incorporate four courses and carry a total of 16 semester-hour credits (Costa Rica and Kenya programs carry 18 semester-hour credits) in biology or environmental studies from Boston University. Summer courses carry four semester-hour credits in environmental studies. Participants receive an official transcript from Boston University approximately six to eight weeks after the conclusion of the program for delivery to the office responsible for credit transfer at their home institution.

Students come from more than 300 colleges to attend SFS programs each year and most are able to transfer credit for their participation. The final decision regarding credit and grade transfer rests with your home institution. Therefore, you should check with your advisor/registrar when applying to our programs to learn how your SFS course work will be applicable for credit in your degree program. If you have questions regarding credit transfer, please call the SFS admissions office at 800.989.4418. In most instances, we can direct you to someone on your campus familiar with credit transfer for SFS programs.

The SFS Affiliate Program

The SFS Affiliate Program assists students in maximizing their SFS experience by building better linkages to the academic community from which SFS students are drawn. Students from Affiliate institutions receive preferential admission and financial aid from SFS. Affiliate schools typically provide direct academic credit for SFS participation and have curricular input into our programs. Each Affiliate school has at least one SFS liaison who is available to provide on-campus advising on our programs. All applicants must obtain permission from their study abroad office or academic dean to participate in our programs. Applicants from Affiliate schools must obtain permission to participate from their campus Affiliate Representative. Please use the enclosed participation approval form.

Current SFS Affiliate Member Schools

Adelphi University
Dr. Gayle Insler

Albion College
Dr. Timothy Lincoln

Albright College
Dr. Kim Justeson
Dr. David Osgood

Alfred University
Ms. Petra Visscher
Dr. Michele Hluchy

Associated Colleges of the South
Dr. Wayne Anderson

Austin College
Ms. Valerie Roberts
Dr. George Diggs, Jr.

Belmont Abbey College
Dr. Robert E. Jones
Dr. Sheila S. Reilly

Bennington College
Dr. Kerry Woods

Boston University
Mr. David Lamitie

Brandeis University
Mr. J. Scott Van Der Meid
Dr. Dan Perlman

Cedar Crest College
Dr. John Cigliano
Dr. Amy Faivre

Clark University
Ms. Adriane Van Gils

Colby College
Dr. David Firmage

College of Charleston
Ms. Sarah Simmonite
Dr. Andrew Sobiesuo

College of the Holy Cross
Dr. Brittain Smith
Dr. Catherine Roberts

College of Santa Fe
Dr. Andrew Lovato

Connecticut College
Ms. Shirley Parson

Cornell University
Dr. Richard Gaulton
Dr. Kristen Grace

Davidson College
Dr. Michael Dorcas

Denison University
Dr. Jessica Rettig
Dr. Andrew Law

DePauw University
Ms. Kate Knaul

Dickinson College
Dr. Thomas Arnold
Ms. Laura Mossler

Elon University
Dr. Monica Pagano

Elizabethtown College
Dr. Thomas E. Murray
Dr. Amy Simes

Emory University
Ms. Kenya Casey
Dr. Philip Wainwright

Gonzaga University
Ms. Wanda Reynolds
Dr. Hugh Lefcort

Grinnell College
Dr. Richard Bright
Dr. Jackie Brown

Guilford College
Dr. Lynn Moseley
Dr. Jim Hood

Hollins University
Ms. Kirsten McKinney
Dr. Renee Godard

Kenyon College
Dr. Ray Heithaus
Ms. Marne Ausec

Lehigh University
Ms. Katie Welsh
Mr. Tony Rossi

Lenoir-Rhyne College
Dr. Marsha Fanning
Ms. Lynda Kirby

Meredith College
Mr. Kevin Morrison
Dr. Larry Grimes

Miami University
Dr. David Keitges

Mount Holyoke College
Ms. Joanne Picard

Muhlenburg College
Ms. Susan B. Norling
Dr. Richard Niesenbaum

Northern Arizona University
Ms. Karen A. Plager
Dr. Betty G. Brown

Ohio State University
Ms. Jenny L. Kraft

Oregon State University
Dr. Joe Hoff
Mr. J. Brock McLeod

Purdue University
Ms. Glenda Caudill
Dr. Brian Harley

Pacific Lutheran University
Ms. Kristin Labs

Rochester Institute of Technology
Dr. Lei Lani Stelle

San Diego State University
Mr. David Carruthers
Mr. Robert Carolin

Santa Clara University
Dr. Dennis Gordon
Ms. Barbara Colyar

Scripps College
Ms. Valerie Eastman

Smith College
Ms. Leslie Hill
Dr. Gregory White

SUNY/College of Environmental Sciences and Forestry
Dr. Allan Drew
Dr. Dudley Raynal

Sweet Briar College
Dr. Robert R. Alexander
Ms. Tiffany Cummings

Texas A&M University
Ms. Lisa Tauferner

Texas Tech University
Ms. Sandra Crosier
Ms. Lilly J. Kilcrease

Trinity College
Dr. Daniel Blackburn
Dr. Joan Morrison

University of Denver
Ms. Carol Fairweather
Dr. Michael Keables
Dr. George Boyd

University of Georgia
Ms. Colleen P. Larson
Dr. Kasee Laster

University of Massachusetts
Ms. Carol LeBold
Ms. Sandra Barron

University of Miami
Dr. Dan DiResta

University of Minnesota
Ms. Sophia P. Gladding
Ms. Shelly Kippa

University of North Carolina/Chapel Hill
Mr. Rodney J. Vargas
Dr. Seth Reice

University of Redlands
Ms. Sara Falkenstien
Dr. Lamont C. Hempel

University of Richmond
Ms. Michele D. Cox
Dr. Christopher Stevenson

University of San Diego
Dr. James Bolender
Dr. Michael Boudrias
Ms. Molly Parkan
Dr. Carl Jubran

University of Southern California
Mr. Peter Hilton
Dr. Stephen Koletty

University of St. Thomas
Ms. Ann Hubbard

University of Texas/Austin
Dr. James Boggs

University of Utah
Ms. Beth Murphy

Washington and Lee University
Dr. James Kahn

Wells College
Dr. Thomas Vawter

Wellesley College
Ms. Jennifer Thomas-Starck
Dr. Beth DeSombre

Whitman College
Ms. Susan Holme Brick
Dr. Delbert Hutchison

SFS Organization

Board of Trustees

Terry L. Andreas, Chair
New York, New York

Darren Aronofsky
Protozoa Pictures
Brooklyn, New York

Chanda Bennett
American Museum of
Natural History
New York, New York

George Bevis
Mitre Corporation
Chestnut Hill,
Massachusetts

Anne Detwiler
New York, New York

Carter Ingram, PhD
Translinks Living
Landscapes Program,
Wildlife Conservation
Society
Bronx, New York

Kenneth R. Locklin
EIF Group
Reston, Virginia

Michael J. Mars
mterra Ventures, LLC
Mendham, New Jersey

Andrew T. Mason
Jade Capital Management
LLC
New York, New York

Charles D. McKee
RBC Dain Rauscher
Portland, Maine

W. James Tozer, Jr.
Vectra Management Group
New York, New York

Jack Waggett
West Hartford,
Connecticut

Judy Winslow
Winslow Associates
Greenwich, Connecticut

Administrative Staff

Bonnie R. Clendenning
President

Katlyn Osgood
Program Associate &
Assistant to President

Programs

Robin Sears, Ph.D.
Program Dean

Bill Frederick
Safety Director

Robin Nesbeda
Safety Program Specialist

Admissions & Institutional Relations

Lili Batchelder
Director of Admissions
and Institutional Relations

Amy Burrows
Academic Liaison

Nicole Anderson
Academic Liaison

Nicole Napoleon
Institutional Relations
Manager

Natsuko Tohyama
Admissions Counselor

Diana Callahan
Enrollment Services
Specialist

Marketing

Ola Russell
Director of Marketing

Ken Michienzi
Marketing Assistant

Development

Jane E. Dickson
Development Director

Marta Brill
Alumni Coordinator

Finance and Administration

Ray Salamanca
Director of Finance and
Administration

Michael Sensabaugh
IT Director

Eva Augusto
Human Resources
Generalist

Yizette Colon
Staff Accountant

Roz Slawson
Staff Accountant

Field Station Leadership

Ray Scarlett, Ph.D.
Director, Center for
Rainforest Studies,
Australia

Simon K. ole Seno, Ph.D.
Director, Center for
Wildlife Management
Studies, Kenya

Gustavo Hinojosa, Ph.D.
Director, Center for
Coastal Studies, Mexico

John Claydon, Ph.D.
Director, Center for
Marine Resource Studies,
TCI

Gerardo Avalos, Ph.D.
Director, Center for
Sustainable Development
Studies, Costa Rica

Safety Advisory Group

Anne Ogilvie
Gloucester, MA

Michelle Aitken
Morrinsville, New Zealand

Doug Brown
Cambridge, Massachusetts

Rob Chatfield
Salt Lake City, Utah

Landon Fake
Bethel, Maine

Jennifer Haddock
Rockport, Maine

Tony Hawgood
Groton, Massachusetts

Jeff Isaacs PA-C
Crested Butte, Colorado

Araya Kruangkum
Chiang Mai, Thailand

Richard Melody
Annapolis, Maryland

Rick Miller
Camden, Maine

Faith Model
Nairobi, Kenya

Mary Moran, M.D.
Chicago, Illinois

Melissa Quinby
Portland, Maine

Amelia Randolph M.D.
Lewiston, Maine

Mark Ritchie
Chiang Mai, Thailand

Laura Sessions
Christchurch, New Zealand

Michael Tarrant
Christchurch, New Zealand

Saranne Taylor
South Paris, Maine

Alumni Profiles



KRISTEN B. GORMAN
AUSTRALIA, FALL 1994

BS Biology, Dickinson College; MSc Biology, Simon Fraser University; PhD Biology, Simon Fraser University

Kristen is a graduate research assistant working on a PhD with the Palmer Long-Term Ecological Research (PAL-LTER) program at Palmer Station in Antarctica. She studies the effects of environmental variability

driven by regional climate warming on the reproductive success and survival of pygoscelis penguins. Kristen conducts field studies on the breeding and foraging ecology of adélie, gentoo, and chinstrap penguins. In the off-season, she and her colleagues conduct lab-work on samples collected during the field season, work on statistical analyses, and attend conferences to facilitate discussion with colleagues.

"I was excited about the opportunity to conduct hands-on ecological research [with SFS] as part of my undergraduate training. SFS provided me with an incredible introduction to field ecology and stimulated me to find other field research opportunities in the US and abroad upon finishing my BS degree. I have since worked on many avian ecology projects with the Student Conservation Association, The University of Wisconsin at Madison, Oregon State University, Simon Fraser University and the Alaska Science Center-USGS, and most currently the US Antarctic Program at Palmer Station, Antarctica" said Kristen.

What did you gain from your SFS experience?

"My SFS experience was marked by the confidence I built in myself, as well as the long-lasting friendships.

In fact, I am still regularly in contact with several people who were on my program...I think working with SFS instructors encouraged critical and independent thinking, a tremendously important skill that every young person should be developing."

Is it "who you know" or "what you know" in your field?

"Actually it is both. I cannot stress enough the importance of working for scientists in the field to stimulate collaborations and develop your research ideas. However, proper graduate study is imperative for developing your own knowledge base and gaining the skills to become a contributing professional."

What advice do you have for other SFS alumni looking to get into your field?

"The two most essential skills that got me to this position have been hard work and committing myself to learning from everyone, particularly those who had more experience than I. To become a research scientist you must have an incredible work ethic, perseverance, and very importantly, find a graduate mentor who is a leader in the field who will develop and challenge your thinking and writing."



ETHAN ZOHN
TURKS AND CAICOS, SPRING 1995

*BA Biology, Vassar College;
Co-Founder, Grassroot Soccer;
Winner of SURVIVOR: AFRICA*

Before winning one million dollars on *Survivor: Africa*, Ethan Zohn, co-founder of the non-profit HIV/AIDS awareness organization, Grassroot Soccer, was a student at the SFS Center for Marine Resource Studies in the Turks and Caicos Islands.

Ethan chose to study with SFS because he was looking for hands-on field experience. "I've been

diving a lot since, but I've never been anywhere as beautiful as that."

But Ethan's most profound and lasting memory was from his time with the people - both his fellow students and the Belongers, the local people of the TCI. One of his favorite memories was celebrating Earth Day with school children by showing them the creatures from the sea. "These kids live on an island, and yet they really had no idea what was under the water."

Beyond SFS: Soccer and Survivor

After graduation, Ethan moved to Hawaii, seeking work in marine biology, but soon found himself beginning a professional soccer career with the Hawaii Tsunami. Ethan then went on to play for teams in Israel and in Zimbabwe, where he witnessed firsthand the devastating effects of HIV/AIDS in Africa and even lost a friend to the disease.

Next came the opportunity to be a contestant on *Survivor: Africa*. "You are out there in the environment, stripped of everything you are used to. Every part of your body is tested - social, physical, spiritual. It helped me grow as a person."

No stranger to competition, Ethan was ready with a strategy: to be an evil back-stabbing jerk. Only, it didn't turn out that way. "The beauty of the game is that different characters can win. The way I did it is by making myself part of the community there and getting people to depend on me. I worked hard, and I was a nice guy."

Grassroot Soccer: How Sports can Save Lives

Soon after winning *Survivor*, Ethan went to work on a new project collaborating with his former soccer buddies to found Grassroot Soccer. The mission of the organization is "to mobilize the global soccer community in the fight against HIV/AIDS."

Professional soccer players are heroes to many young Africans, and through its unique curriculum, Grassroot Soccer uses soccer players and the game itself to raise awareness about the disease and to teach prevention strategies. Professional players are trained on HIV/AIDS issues and the Grassroot Soccer curriculum, and then they are sent out into the schools to work with African students. By 2010, Ethan projects that one million students will have graduated from the program.

"Taking on such an ambitious project and transforming it from an idea to reality is a long and difficult process. We were just three guys with no experience, but we knew we had a good concept. It was a learning experience."

"It just takes a few people with a lot of passion. There were plenty of times when we could have stopped, and plenty of reasons: governments, lack of money and so on. But the goal was always in the back of our minds. It's a bit like the scientific process - what is the problem? What is our hypothesis? Now, create the plan. Just like on South Caicos when we asked the question, "how can we work with local fisherman on the issue of over fishing?"

For more info about Grassroot Soccer, check out their website: www.grassrootsoccer.org/

SFS Glossary of Terms

Case study: Case studies provide an analysis of an actual local environmental situation or dilemma requiring both a decision and action. SFS uses local case studies to give students an interdisciplinary and holistic understanding of the background, context, and relevance of environmental issues surrounding the community. The center director and faculty develop two or three case study questions each semester. Within the case study format, the lecture courses provide the theoretical framework, background, and essential tools necessary for students to carry out their Directed Research projects. Faculty work with students so that students understand the case study problem and can identify potential solutions and alternatives.

Communal living: Students live and learn within a small group (20 to 35) alongside international staff. Students share a room with three to eight other students, share bathroom facilities, common areas, computer labs, and dining areas. Communal living at these facilities means everyone shares the responsibility for the upkeep and functionality of the station. Respect for one another and the facility is key.

Community involvement: SFS centers are located in small, remote villages, making community involvement an important element of our programs. Students spend approximately 20 hours per semester involved in various community service activities, such as tutoring in local schools. Our close relationship with the communities where we work were cultivated and continue to be strengthened by our strong involvement and commitment to the well-being of the local people.

Cross cultural competency: Cultural competence is defined as the ability of individuals and systems to work or respond effectively across cultures in a way that acknowledges and respects the culture of the person or organization being served. Culturally competent SFS students are aware and respectful of the values, beliefs, traditions, and customs of the countries where they are a guest.

Cultural immersion: Our definition of cultural immersion strays from the common perception of the term. At SFS, this means: 1) We live in, conduct research in, and give our time to bettering the communities where we are located; 2) We work with local stakeholders to design and perform research projects that directly benefit the local community; 3) Students present their research findings to the community at the end of the semester; 4) Students are guided, and in some cases take classes, on the history and cultural practices of the community where they are studying (such as cultural field trips, weekend home stays, language instruction, participation in local festivals, etc.); 5) Students engage in community service projects with local community members and/or NGOs.

Directed research: SFS semester students conduct Directed Research projects and report their results to community stakeholders. The topics are defined by the centers' Five Year Research Plans and are based upon the local communities needs. Each semester, students are presented with three or more possible Directed Research project options. After selecting an option, students then conduct research, collect data and give final presentations in groups (however, final papers are done by the individual).

Experiential learning: Students will learn by experiencing the topics firsthand. While you will receive some lectures in a classroom, you will also regularly venture out into the field for lectures, to conduct research, and to take field trips. On SFS programs, the field is your primary classroom. Lectures and classroom work support and enhance the work that you do in the field. Processing that information and applying it to your field work and research is key to our model.

Faculty mentoring: SFS students are closely mentored by our faculty teams — this is key to the SFS educational model. Every SFS field station is staffed with a center director and two or three full-time faculty who are trained in marine and terrestrial ecology, natural resource management, socioeconomics, and policy.

Field exercises: Hands-on activities that reinforce the academic material presented in classroom lectures, teach students field techniques, how to apply data analyses, and receive training required to prepare them for their Directed Research projects.

Field research: During field exercises and Directed Research, students will learn field research techniques necessary to design experiments and gather data in the field. In addition, students will also be expected to analyze their data and write up their research into a scientific report/paper.

Field station: Home to dozens of scientists and researchers devoted to the research topics of their respective stations. Students join these dedicated teams — living, eating, and researching with them in pursuit of solving real-world environmental problems. Our field stations are remote, yet well-integrated into the community, fully operational laboratories. The living conditions are basic but have fully functional kitchens, running water, and electricity (including slow Internet connections).

Five Year Research Plan: Defined by SFS staff, a research advisory committee, local clients, and the community to develop research priorities and projects that address critical environmental problems. The purpose of the plan is to develop long-term research projects that utilize the expertise of SFS faculty while providing useful research to local stakeholders. The research direction also provides the community and students with a framework for the direction of student coursework and research projects and how such courses and research fit into the bigger picture of natural resource conservation.

Interdisciplinary: SFS draws from many fields of study in its programs to give students the most well-rounded, comprehensive view of the environmental problem and natural resource use solutions they are studying. Ecology, biology, economics, environmental studies, anthropology, culture, and language all come into play when studying on an SFS program.

Service learning: SFS is committed to identifying environmental issues critical to the communities where we work, researching these topics, providing results and recommendations to these community stakeholders, and also volunteering within the community on projects that are beneficial to its members. Such an integration of curriculum and service help our students understand the local community from a different viewpoint — instead of an outsider examining the community, the students are volunteering for the community and understanding community issues first hand. Examples of community service completed in past SFS programs include planting trees; beach clean-ups; sponsoring community festivals for local children; tutoring students in English, math, and science; and volunteering in local hospitals.

Sustainable living: At times, the constraints of operating in underdeveloped nations make living in a perfectly sustainably manner difficult and unreasonable. Sustainable living at our field station locations varies greatly from sustainable living in the U.S. Examples of how we live sustainably at some of our centers include students taking cold-water showers, composting, hanging clothes to dry, and using electronic PDFs for handouts and reports for classes.

Sustainable development: A development path that meets the needs of the present population without comprimizing the needs and aspirations of future generations. Three pillars of sustainable development are environmental sustainability, social justice and economic viability.



10 Federal Street, Suite 24
Salem, MA 01970-3876

P 800.989.4418
F 978.741.3551

www.fieldstudies.org

